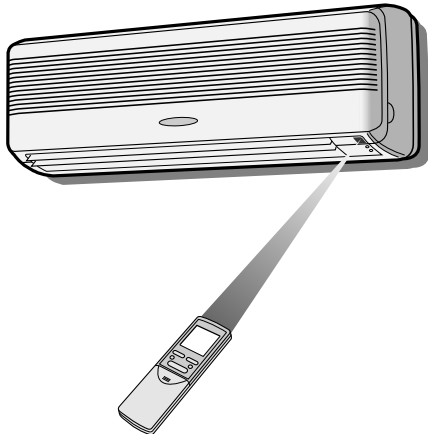


# SHARP SERVICE MANUAL

S2912AYX099E/



## SPLIT TYPE ROOM AIR CONDITIONERS

### INDOOR UNIT

**MODELS AH-X079E/X099E  
AY-X079E/X099E**

### OUTDOOR UNIT

**AU-X079E/X099E  
AE-X079E/X099E**

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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## SPECIFICATIONS

ITEMS UNIT		INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR
		AH-X079E	AU-X079E	AH-X099E	AU-X099E
Cooling capacity	kW	2.1(0.7 - 2.6)		2.6(0.7 - 2.9)	
Moisture removal	Liters/h	0.8		1.0	

### ★ Electrical data

Phase		—	Single			
Rated frequency		Hz	50			
Rated voltage range		V	198 to 264			
Rated voltage		V	220 - 240			
Rated current	Cool	A	3.7 - 3.4		4.9 - 4.5	
Rated input	Cool	W	800		1070	
Power factor	Cool	%	98 - 98		99 - 99	
Compressor	Type		Hermetically sealed rotary type			
	Model		HV166A1-S10DK			
	Oil charge		450cc (SUNISO 4GSD)			
Refrigerant system	Evaporator		Bare tube type		Grooved tube type	
	Condenser		Corrugate Fin and Grooved tube type			
	Control		Capillary tube			
	Refrigerant volume		630g		680g	
Noise level (at cooling)	High	dB(A)	35	43	36	43
	Med.	dB(A)	31	—	32	—
	Low	dB(A)	28	—	28	—

### Fan system

Drive	Direct drive					
Air flow quantity (at cooling)	High	m³/min.	7.0	23.1	7.2	23.1
	Med.	m³/min.	6.1	—	6.2	—
	Low	m³/min.	5.3	—	5.3	—
Fan	Cross flow fan		Propeller fan		Cross flow fan	Propeller fan

### Connections

Refrigerant coupling	Flare type				
Refrigerant tube size Gas, Liquid	3/8", 1/4"				
Refrigerant pipe sets No.	AZ-24H5E; 5m, AZ-24H7E; 7m				
Drain piping mm	O.D ø 18				

### Others

Safety device			Compressor: Thermal protector		Compressor: Thermal protector	
			Fan motors: Thermal fuse			
			Fuse, Micro computer control			
Air filters			Polypropylene net (Washable)			
Net dimensions	Width	mm	750	698	750	698
	Height	mm	270	530	270	530
	Depth	mm	183	250	183	250
Net weight		kg	8	28	8	28

Note: The condition of star ( ★ ) marked item are 'ISO5151'.

ITEMS UNIT		INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR
		AY-X079E	AE-X079E	AY-X099E	AE-X099E
Cooling capacity	kW	2.1(0.7 - 2.6)		2.6(0.7 - 2.9)	
Heatpump Heating capacity	kW	3.2(0.7 - 3.6)		3.4(0.7 - 4.0)	
Moisture removal	Liters/h	0.8		1.0	

#### ★ Electrical data

Phase		—	Single			
Rated frequency		Hz	50			
Rated voltage range		V	198 to 264			
Rated voltage		V	220 - 240			
Rated current	Cool	A	3.7 - 3.4		4.9 - 4.5	
	Heat	A	5.0 - 4.5		5.5 - 5.0	
Rated input	Cool	W	800		1070	
	Heat	W	1080		1200	
Power factor	Cool	%	98 - 98		99 - 99	
	Heat	%	98 - 98		99 - 99	
Compressor	Type		Hermetically sealed rotary type			
	Model		HV166A1-S10DK			
	Oil charge		450cc (SUNISO 4GSD)			
Refrigerant system	Evaporator		Bare tube type		Grooved tube type	
	Condenser		Corrugate Fin and Grooved tube type			
	Control		Capillary tube			
	Refrigerant volume		650g		670g	
	De-Ice system		Micro computer controled reverse sysetm			
Noise level (at cooling)	High	dB(A)	35	43	36	43
	Med.	dB(A)	31	—	32	—
	Low	dB(A)	28	—	28	—

#### Fan system

Drive	Direct drive					
Air flow quantity (at cooling)	High	m³/min.	7.0	22.8	7.2	22.8
	Med.	m³/min.	6.1	—	6.2	—
	Low	m³/min.	5.3	—	5.3	—
Fan			Cross flow fan	Propeller fan	Cross flow fan	Propeller fan

#### Connections

Refrigerant coupling	Flare type					
Refrigerant tube size Gas, Liquid	3/8", 1/4"					
Refrigerant pipe sets No.	AZ-24H5E; 5m, AZ-24H7E; 7m					
Drain piping mm	O.D ø 18					

#### Others

Safety device			Compressor: Thermal protector		Compressor: Thermal protector	
			Fan motors: Thermal fuse			
			Fuse, Micro computer control			
Air filters			Polypropylene net (Washable)			
Net dimensions	Width	mm	750	698	750	698
	Height	mm	270	530	270	530
	Depth	mm	183	250	183	250
Net weight		kg	8	28	8	28

Note: The condition of star ( ★ ) marked item are 'ISO5151'.



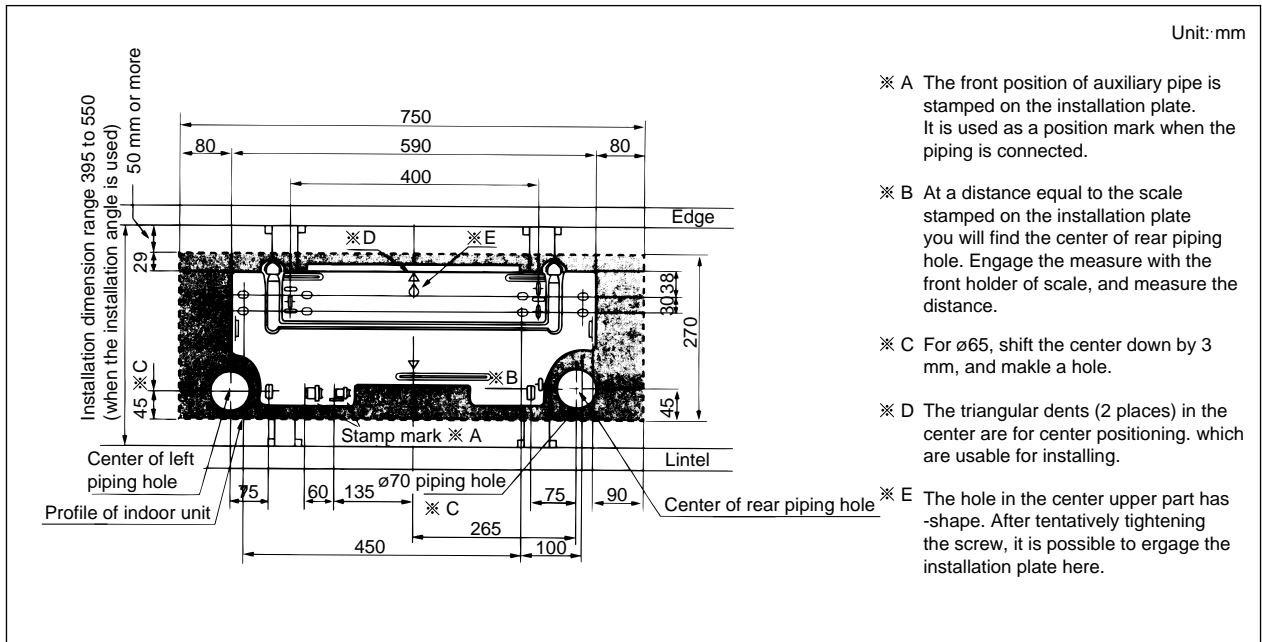


Figure E-3. INSTALLATION DIMENSIONS



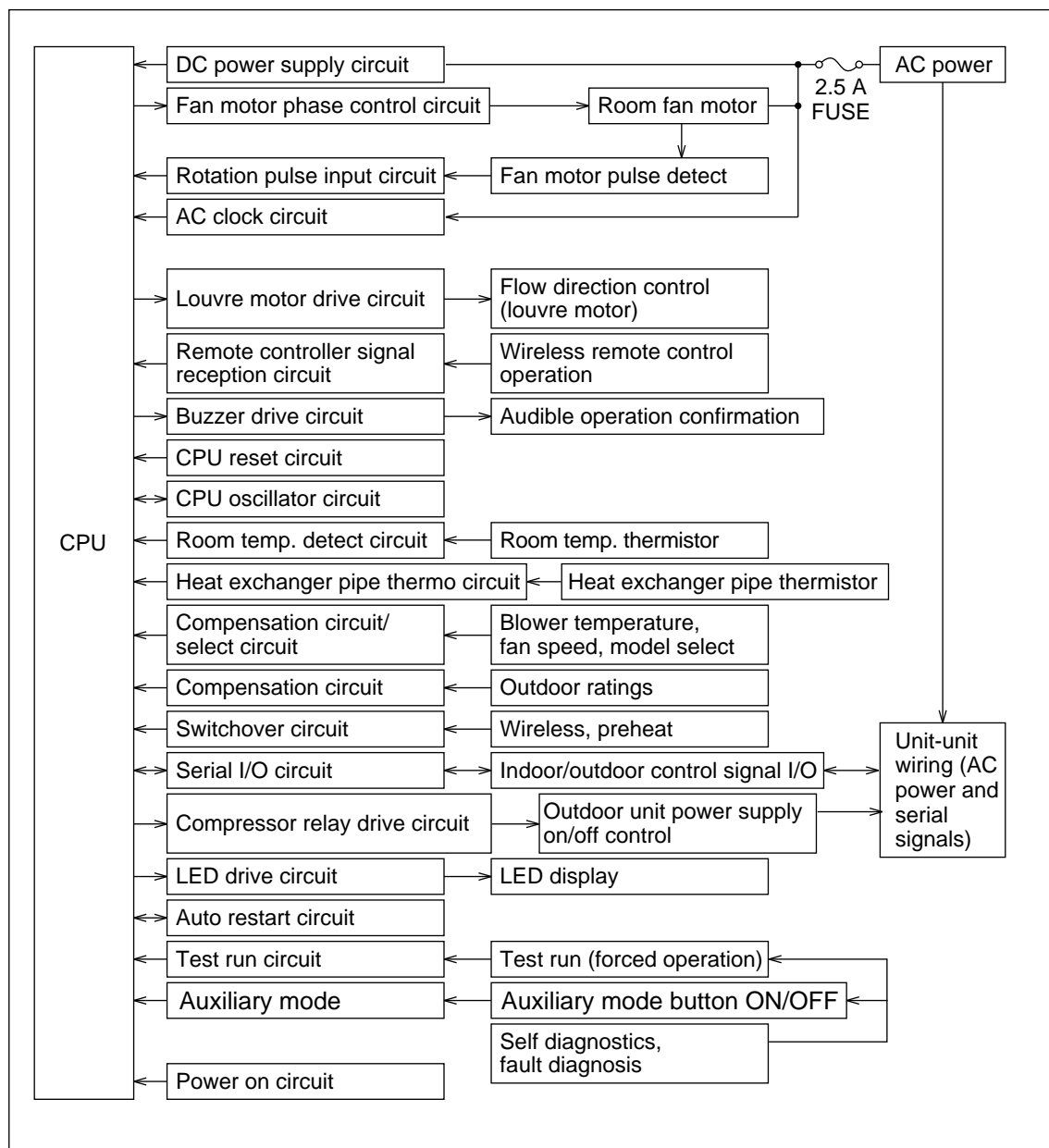
## ELECTRICAL PARTS

**For Model AH-X079E/X099E, AU-X079E/X099E, AY-A079E/X099E and AE-A079E/X099E**

DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AH, AY
Indoor fan motor capacitor	—	430V, 1.5μF	AH, AY
Transformer	—	Primary; AC 230V, 50Hz Secondary; AC14.6V, 50Hz	AH, AY
Fuse	—	250V, 2.5A	AH, AY
Compressor	HV166A1-S10DK	3-PHASE Induction motor	AU, AE
Outdoor fan motor	ML-A485	220 - 240V, 50Hz	AU, AE
Outdoor fan motor capacitor	—	430V, 1.5μF	AU, AE
WPE1	—	QFS-AA047JBE0(13A, 250V)	AU, AE
WPE2	—	QFS-GA015JBE0(10A, 250V)	AU, AE
WPE3	—	QFS-GA008JBE0(3A, 250V) or QFS-GA027JBE0 (3A, 250V)	AU, AE AU

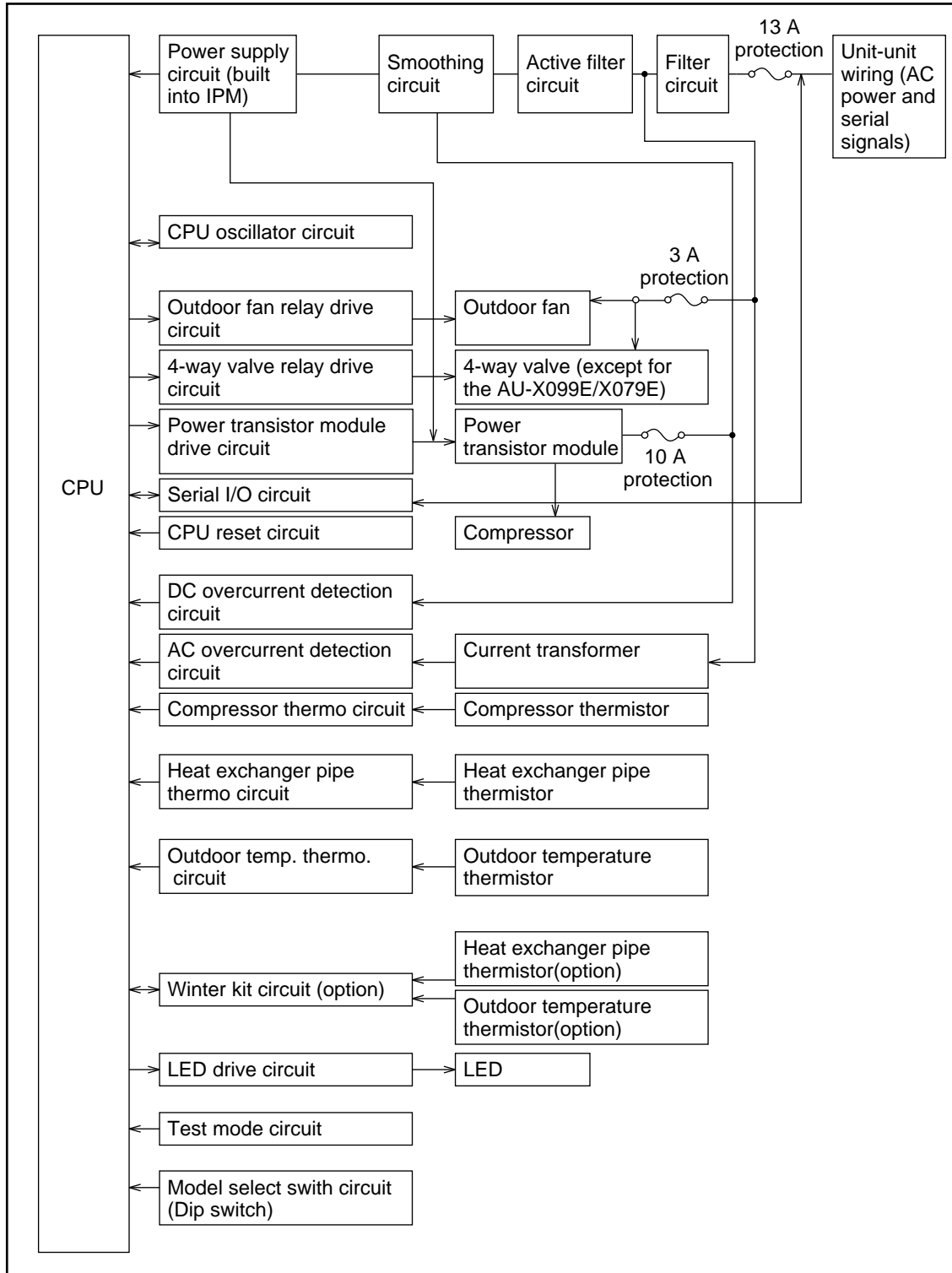
## BLOCK DIAGRAMS

### INDOOR UNIT for AH-X075E/X095E and AY-X075E/X095E

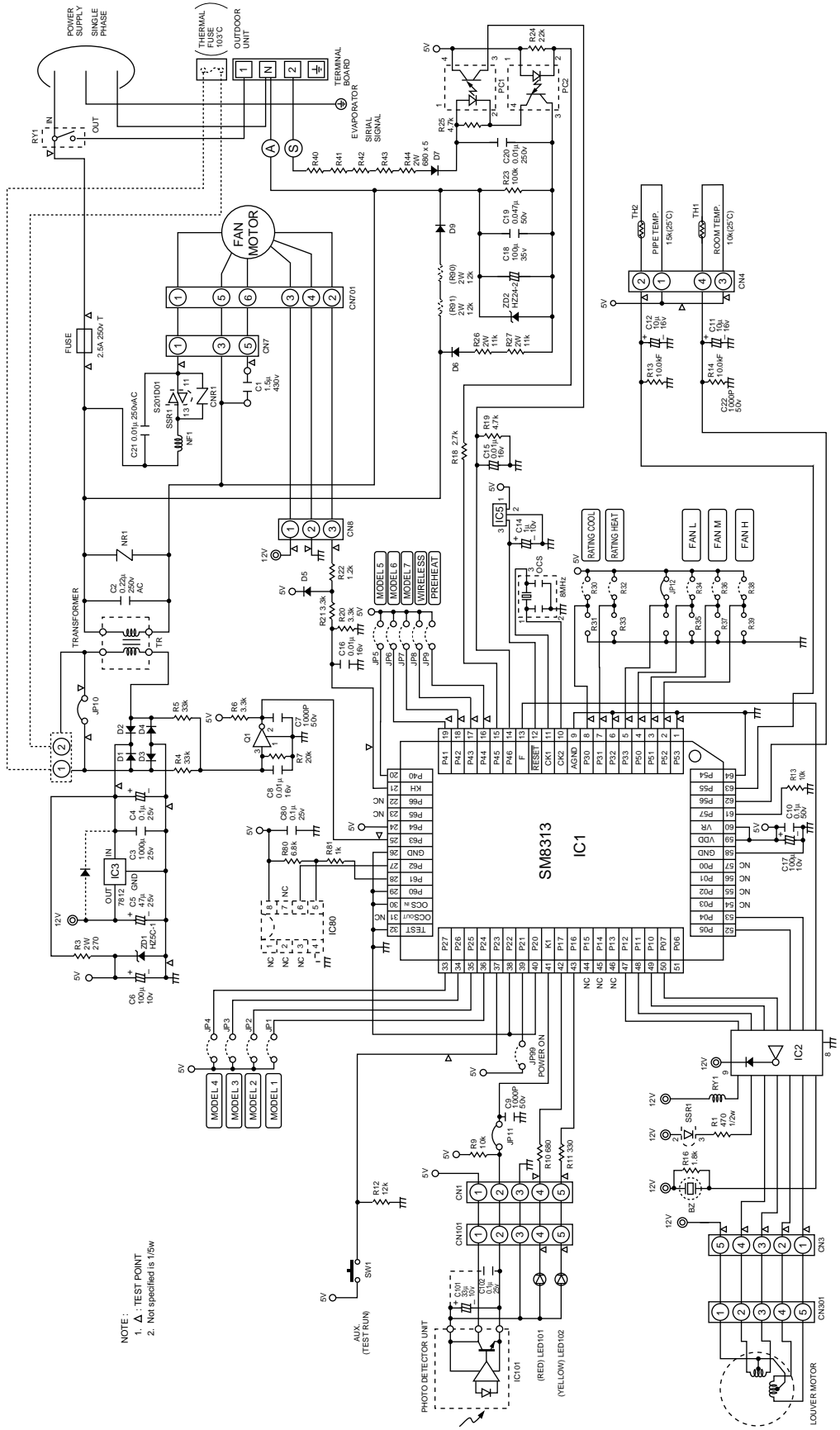




# OUTDOOR UNIT for AU-X075E/X095E and AE-X075E/X095E



# MICROCOMPUTER CONTROL SYSTEM



NOTE:  
1. Δ: TEST POINT  
2. Not specified is 1/5w

Figure L-1. Electronic Control Circuit Diagram for  
AH-X079E/X099E and AY-X079E/X099E

FUNCTION	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	MODEL 6	MODEL 7	WIRELESS	PREHEAT	RATE	RATE	FAN L	FAN M	FAN H
IC1 PIN NO.	36(P24)	35(P25)	34(P26)	33(P27)	20(P40)	19(P41)	18(P42)	17(P43)	16(P44)	8(P30)	7(P31)	4(P50)	3(P51)	2(P52)
SYMBOL	JP1	JP2	JP3	JP4	JP5	JP6	JP7	JP8	JP9	R30, R31	R32, R33	R34, R35	R36, R37	R38, R39
AH-X079E	X NONE	X NONE	O USE	X NONE	O USE	O USE	O USE	X NONE	X NONE	R30: 5.1k R31: 15k	R32: JP R33: NONE	R34: JP R35: NONE	R36: JP R37: NONE	R38: JP R39: NONE
AH-X099E	X NONE	X NONE	O USE	X NONE	O USE	X NONE	O USE	X NONE	X NONE	R30: 5.1k R31: 13k	R32: JP R33: NONE	R34: JP R35: NONE	R36: JP R37: NONE	R38: JP R39: NONE
AY-X079E	X NONE	X NONE	X NONE	X NONE	X NONE	O USE	O USE	X NONE	X NONE	R30: 5.1k R31: 13k	R32: 15k R33: 13k	R34: JP R35: NONE	R36: JP R37: NONE	R38: JP R39: NONE
AY-X099E	X NONE	X NONE	X NONE	X NONE	X NONE	X NONE	O USE	X NONE	X NONE	R30: 5.1k R31: 13k	R32: 15k R33: 13k	R34: JP R35: NONE	R36: JP R37: NONE	R38: JP R39: NONE

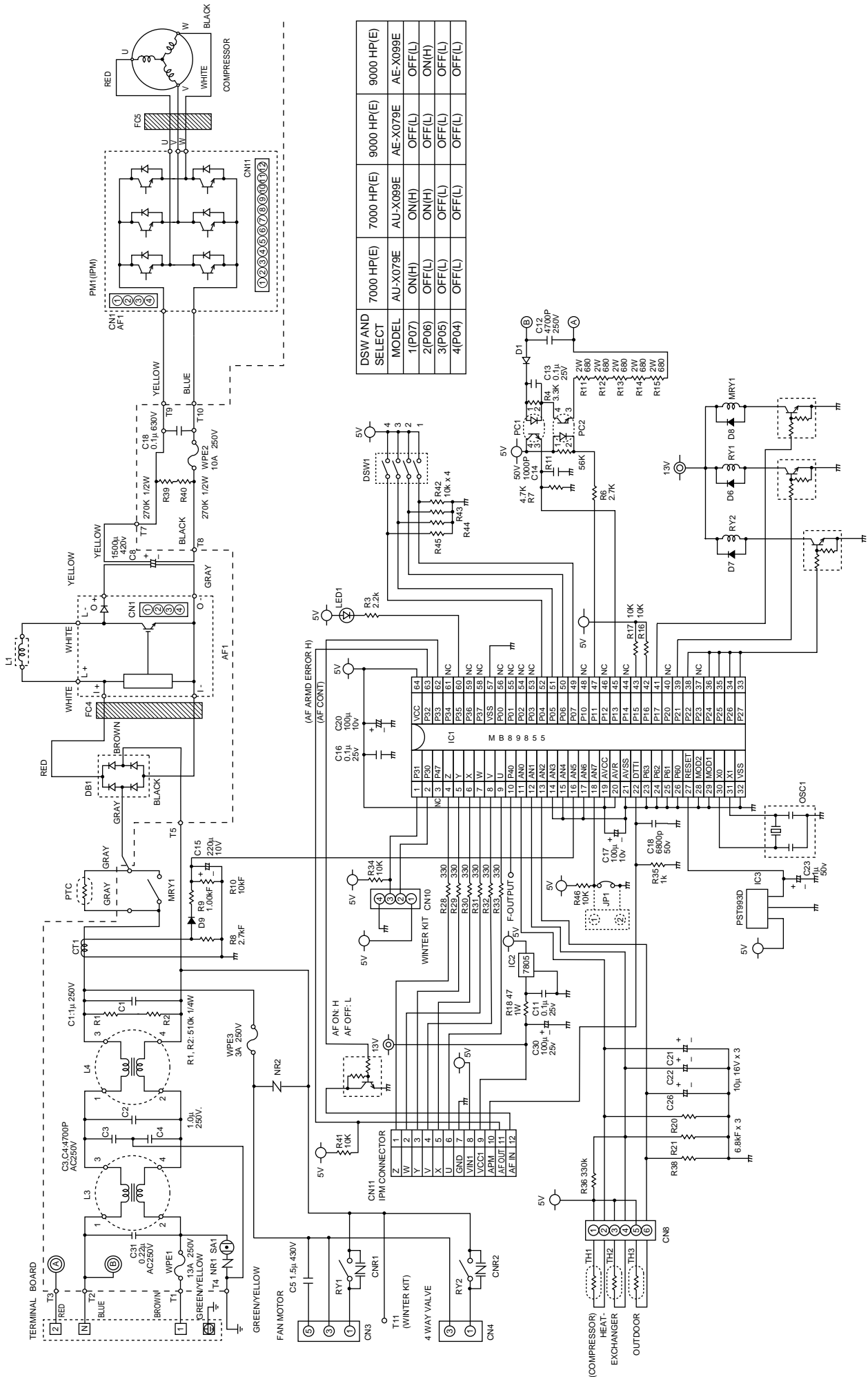


Figure L-3. Electronic Control Circuit Diagram for AU-X079E/X099E and AE-X079E/X099E

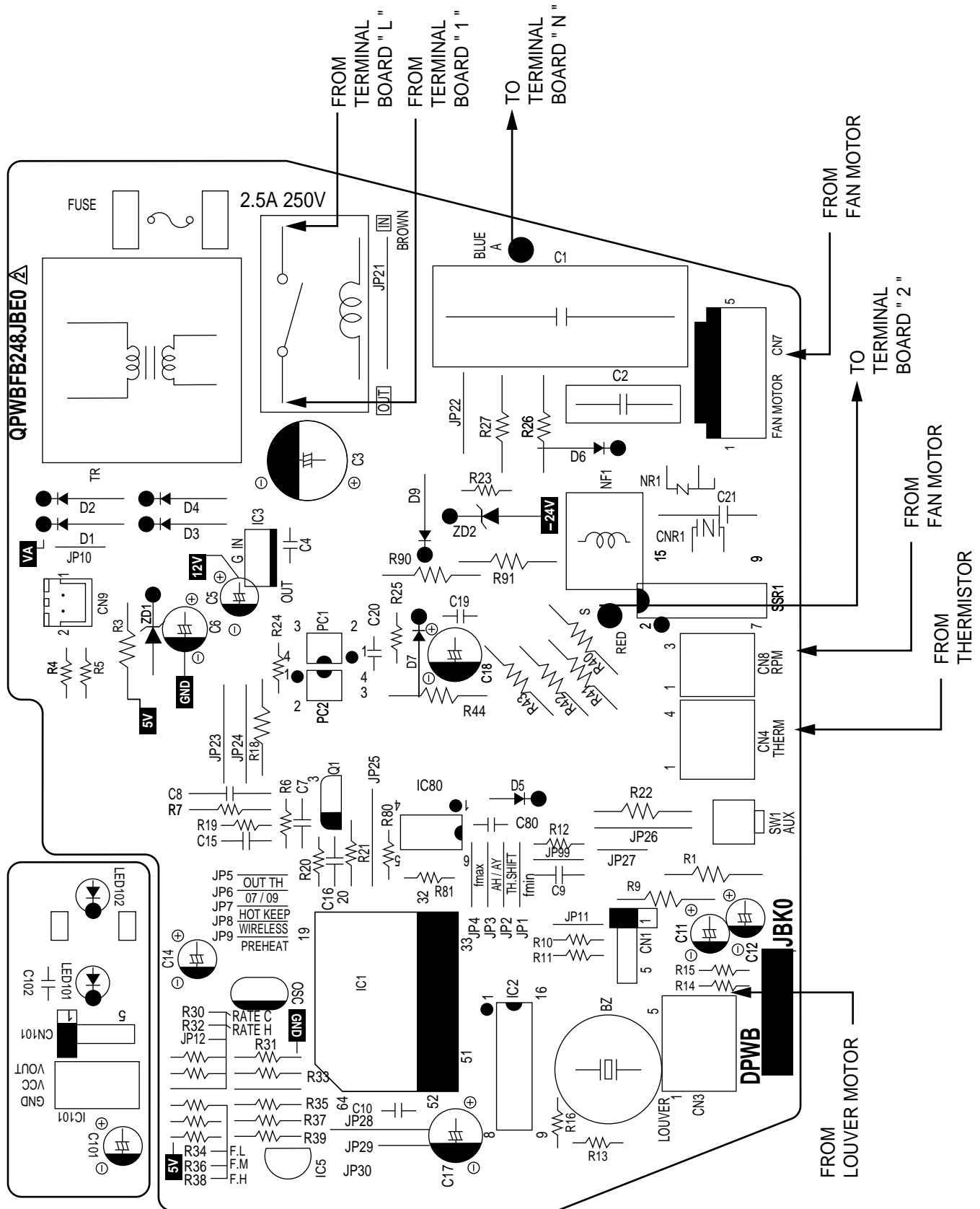


Figure L-3 Printed Wiring Board for AH-X079E/X099E and AY-X079E/X099E

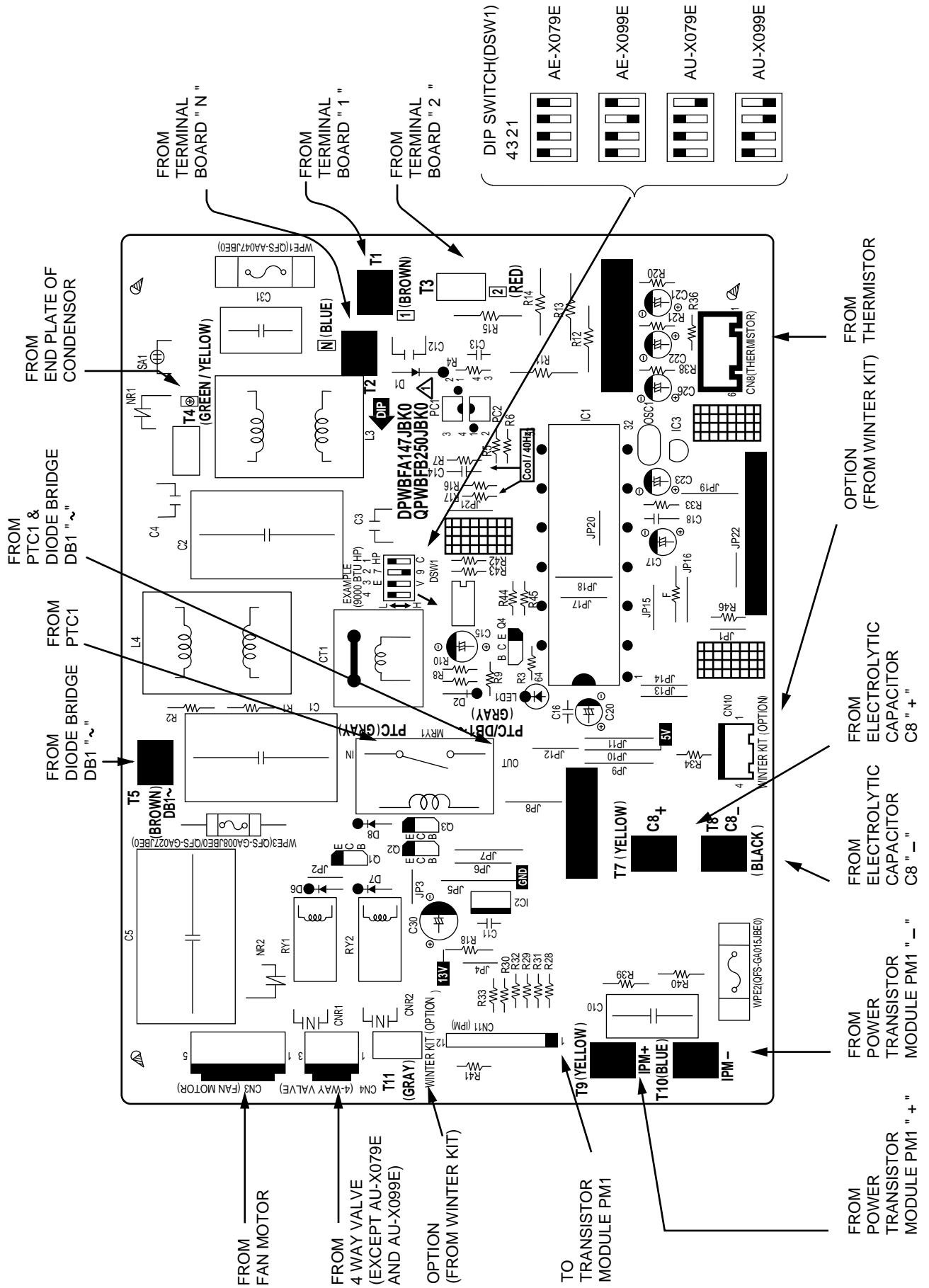


Figure L-4 Printed Wiring Board for AU-X079E/X099E and AE-X079E/X099E

## FUNCTIONS

**AH-X079E/X099E are not provided with the heating function.**

### 1. INDOOR UNIT

#### 1-1 Temperature Adjustment

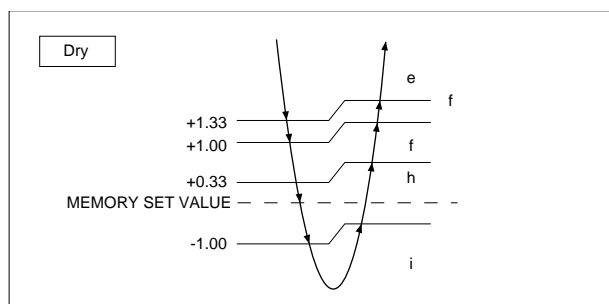
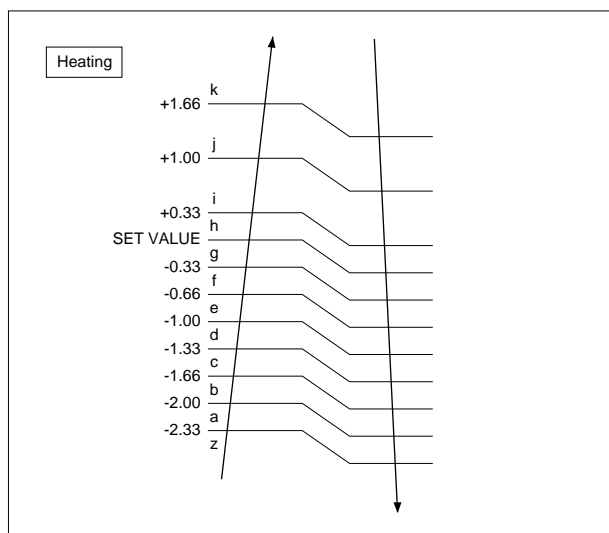
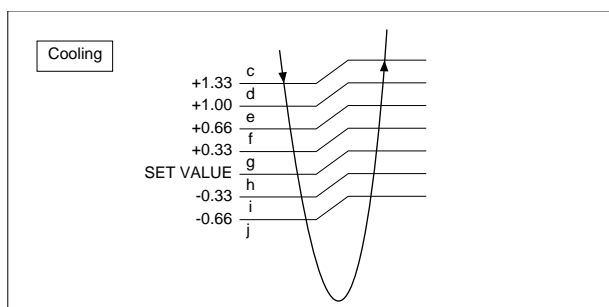
##### a. Normal control

##### Proportional control (P control)

When the temperature zone changes, this control changes the frequency by one rank to move closer to the set value.

##### Integral control (I control)

When the temperature zone has set time in the same zone, this control changes the frequency by one rank to move closer to the set value. (Excluding the h zone.)



##### b. Initial control

The initial frequency is determined as shown in the tables below based on the difference between the temperature adjustment setting at the beginning of operation and the room temperature. After operation begins, normal control is performed and therefore the correspondences in the tables below will not hold.

Cooling	
Room temp. zone	Frequency Code
c	9
d	8
e	7
f	5
g	3
h	2
i	1
j	OFF

Heating	
Room temp. zone	Frequency Code
k	OFF (Hot keep fan)
j	1
i	1
h	2
g	3
f	4
e	5
d	6
c	8
b	A
a	B
z	C

Dry	
Room temp. zone	Frequency Code
e	4
f	3
g	2
h	1
i	OFF

##### c. Temperature adjustment

The temperature adjustment range is changed by changing the operating mode with the operation switch.

##### (1) Heating

If the room temperature is in the z zone when operation begins, proportional/integral control is not performed, and the machine runs at frequency code c full power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after that proportional/integral control is performed.

##### (2) Cooling

If the room temperature is in the c zone when operation begins, proportional/integral control is not performed, and the machine runs at frequency code 9 power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after that proportional/integral control is performed.

##### (3) Dry

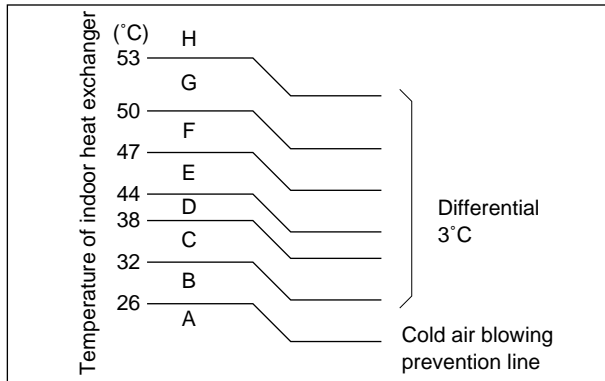
After operation begins, 2 minutes (running at the h zone) of the room temperature is stored in memory, and that becomes the set value.

##### (4) Circulation

The frequency code 0 is sent to the outdoor machine, and only the fan of the indoor machine runs, the compressor does not run.

## 1-2 Indoor fan control

This control uses the thermistor for the indoor heat exchanger to control cold air blowing prevention, the indoor fan, and overheating prevention.



### (1) Control for indoor freezing prevention

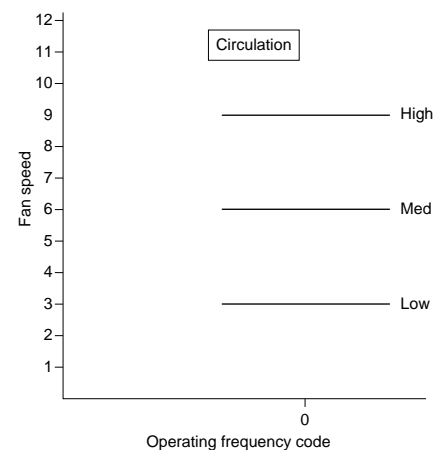
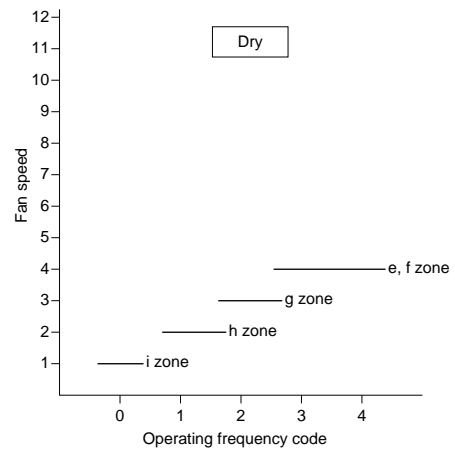
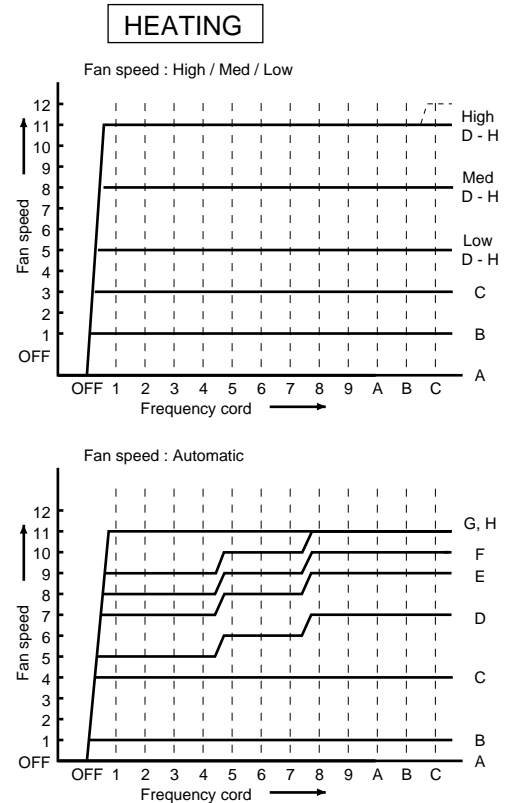
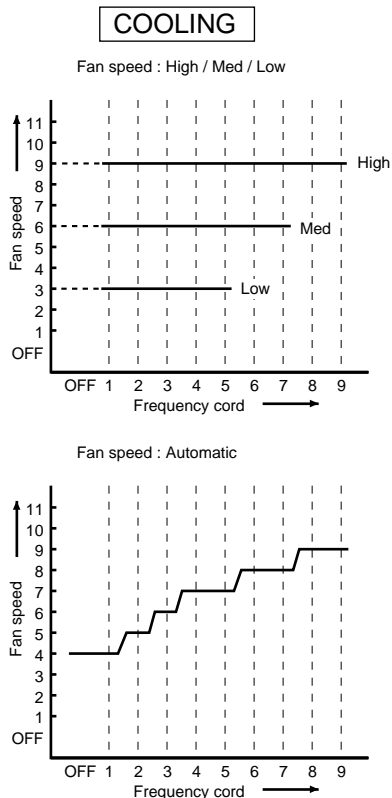
If the temperature of the indoor heat exchanger stays below approximately 0°C for four minutes during cooling or dry, this control stops the compressor. Over 2°C the compressor will run again.

### (2) Control for cold air blowing prevention

When heating begins, this control stops the indoor fan until the temperature of the indoor heat exchanger reaches 26°C. It also stops the fan if the temperature goes below 23°C during operation.

### (3) Indoor fan and operating frequency

The indoor fan has 12 speeds, and changing is done in four stages, "Auto", "High", "Med", and "Low". The relations between the indoor fan speed, air quantity setting, operating frequency, and indoor heat exchanger are shown in the following charts.



### 1-3 Hot keep

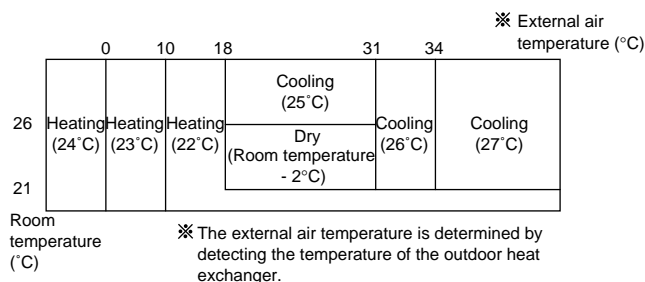
If the room temperature is in the j or k zone during heating, the compressor is turned on and off to prevent overheating.

Zone	Compressor intermittent time	Fan
J	3 min. on - 3 min. off	Same as Compressor
K	3 min. on - 8 min. off	After "3 min. on - 3 min.off" is repeated 4 times, the compressor goes off, and only the fan continues to repeat "3 min. on - 8 min.off".

The fan goes off 30 seconds after the compressor goes off.

### 1-4 Automatic operation

The operating mode and temperature setting are determined by the room temperature and the external air temperature.



### 1-5 ON-timer

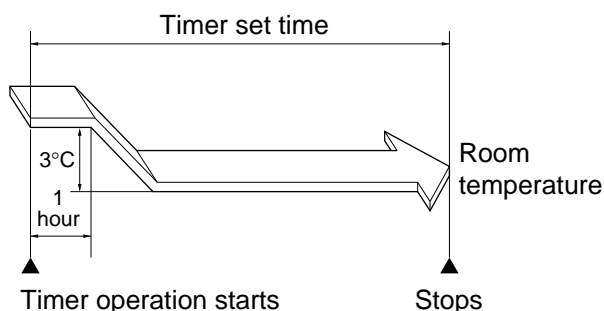
The ON-timer is set by pressing the ON-timer button. In order to attain the set temperature at the set time, the operation starting time is corrected by neuro and fuzzy computing one hour before the set time.

### 1-6 OFF-timer

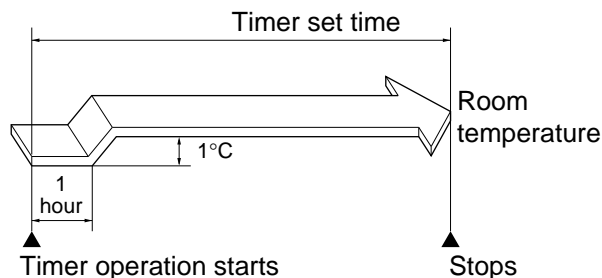
The OFF-timer is set by pressing the OFF-timer button. Operation is as follows:

	Set temperature
Cooling Heating	By fuzzy computing Set the shift up time Final (Cooling setting + 1°C) Final (Heating setting - 3°C)
Dry	Same as above (Final setting + 1°C)

\*During Heating



\*During Cooling / Dry



### 1-7 Swing louvre

The louvre is moved by a stepping motor to perform swing and fixing in the set position.

If the "FLOW DIRECTION" button is pressed during swing, it will stop. If the "FLOW DIRECTION" button is pressed while it is stopped, it will swing.

### 1-8 Restart control

Once the compressor stops, this control prevents it from starting again for 3 minutes. It also prevents starting for 20 seconds immediately following plugging into the power outlet.

### 1-9 One-hour operation

If this button is pressed when operation is stopped, operation will begin and then stop after 1 hour.

If pressed when it is operating, will stop after one hour.

### 1-10 Full power operation

Immediately begins cooling or heating at maximum power and air flow. Full power stops after 1 hour.

(During heating)

Operates at setting of 32°C.

(During cooling)

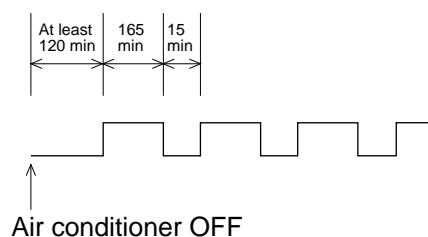
Operates at setting of 18°C.

### 1-11 Preheat

When heating is stopped, supplies a small amount of power to the compressor to make heating start more quickly.

Operates when the indoor temperature sensor and external air sensor detect that the room temperature and outdoor heat exchange temperature are low (below 18°C and 10°C, respectively). Stops when the compressor chamber temperature rises above 30°C.

Preheat does not operate for 2 hours after heating is stopped. After that, it goes on for 165 minutes and then stops for 15 minutes, repeatedly.



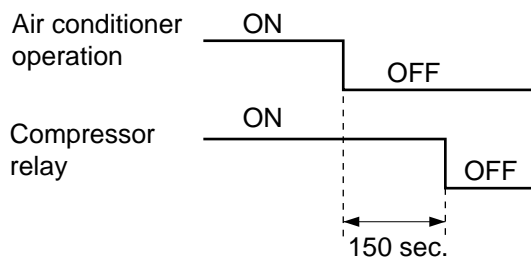


**1-12 Power ON start**

If a jumper wire is inserted into the place indicated JP99 on the indoor control board, and the power plug is inserted. cooling or heating will be automatically determined by the room temperature sensor on the main unit, and operation will begin.

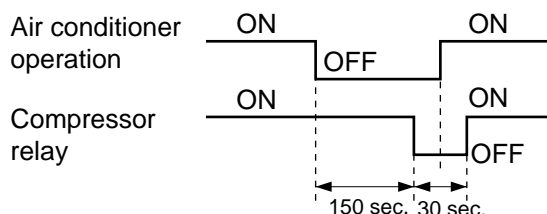
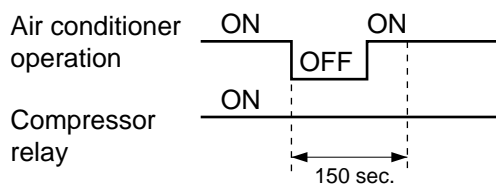
**1-13 Compressor relay**

- (1) It is ON during operation, and when operation is stopped, goes OFF after a delay of 150 seconds (not immediately).
- (2) The minimum OFF time of the relay is 30 seconds.



It will not go ON again before 30 seconds elapses.

- (3) If air conditioner operation is turned on again during the 150 second delay before the compressor relay goes off, the compressor relay will stay on.

**1-15 Auto Restart**

When power failure occurs, after power is recovered, the unit will automatically restart in the same setting which were active before the power failure.

Operating mode (Cool, Heat, Dry)

- Temperature adjustment (within 22°C range) automatic operation
- Temperature setting
- Fan setting
- Air flow direction
- Power ON/OFF
- Automatic operation mode setting
- Swing louver

Setting not memorized

- Timer setting
- Full power setting

**AU-X079E/AU-X099E is not provided with the heating function.**

**AU-X079E/X099E are not provided with the heating function.**

## 2. OUTDOOR UNIT

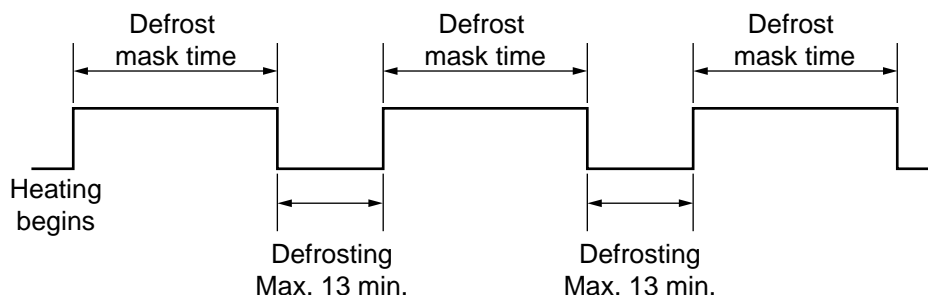
### 2-1 Defrost operation

#### (1) Overview

Defrosting begins during heating if the conditions for compressor operation time and outdoor heat exchanger temperature are met.

When defrosting begins, the indoor and outdoor fans stop.

Defrosting stops when the temperature of the outdoor heat exchanger goes above approximately 10°C or defrosting time exceeds 13 minutes.



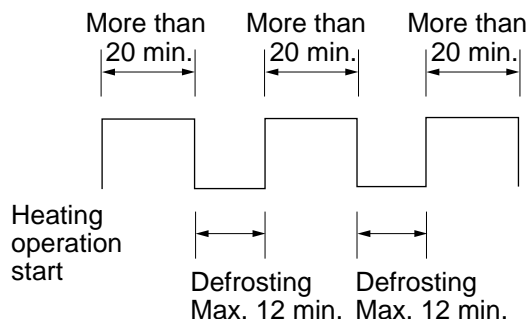
#### (2) Defrosting

If the compressor operation time is more than 20 minutes in the heating mode and the outdoor air temperature and outdoor heat exchange temperature satisfy the defrosting conditions, the defrosting operation is started.

When the defrosting operation is started, the indoor fan starts to run intermittently.

When the outdoor suction pipe temperature reaches approx. 4°C or above or when the defrosting time exceeds 12 minutes, the defrosting operation is quit.

The defrosting zone is an outdoor heat exchanger temperature of under approximately -4°C.



#### (3) During defrosting

When defrosting begins, the compressor stops. Approximately 3 minutes later, the compressor reactivates in the refrigeration cycle, and the outdoor heat exchanger is defrosted.

Each mode is as follows:

The outdoor fan is stopped

The operating frequency is as shown in the table below

The indoor fan is stopped

Model	Frequency	Model	Frequency
AE-X099E, AU-X099E	95Hz	AE-X079E, AU-X079E	90Hz

#### (4) Defrost stop

When defrosting time exceeds 13 minutes

When the temperature of the outdoor heat exchanger rises above approximately 10°C

Defrost stop is determined by either of the above conditions, and the compressor is stopped.

At the same time, the outdoor fan go ON. The compressor is reactivated in the heating cycle 3 minutes after it was stopped, and normal control resumes.

## 2-2 Frequency control

### (1) AC current peak control

Model	Set value (Normal)	
	During cooling	During heating
AU-X079E	5.8A	—
AU-X099E	6.0A	—
AE-X079E	5.8A	6.3A
AE-X099E	6.0A	6.5A

### (2) Control for prevention of indoor heat exchanger overheating

If the temperature of the indoor heat exchanger exceeds the overheating prevention line 1 or 2 during heating, the operating frequency is lowered by approximately 5 to 10 Hz.

After that, the frequency is lowered by approximately 5Hz once every 60 seconds or 10 Hz once every 120 seconds. When the temperature of the indoor heat exchanger goes below the overheating prevention line 1, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to 15 Hz without the temperature of the outdoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

Operating Frequency	Overheating prevention line 1 (Lower 5Hz)							
	Above 92Hz	92 to 88Hz	88 to 83Hz	83 to 75Hz	75 to 50Hz	50 to 43Hz	43 to 37Hz	Below 37Hz
During Normal Operation	51°C	52°C	53°C	54°C	53°C	52°C	50°C	46°C
During Full Power Operation	54°C	56°C	57°C	58°C	56°C	55°C	52°C	49°C

Operating Frequency	Overheating prevention line 2 (Lower 10Hz)							
	Above 92Hz	92 to 88Hz	88 to 83Hz	83 to 75Hz	75 to 50Hz	50 to 43Hz	43 to 37Hz	Below 37Hz
During Normal Operation	53°C	54°C	55°C	56°C	55°C	54°C	52°C	48°C
During Full Power Operation	56°C	57°C	58°C	60°C	58°C	57°C	54°C	51°C

### (3) Control for prevention of outdoor heat exchanger overheating

If the temperature of the outdoor heat exchanger exceeds the overheating prevention line 1 or 2 during cooling, the operating frequency is lowered by approximately 5 to 15 Hz.

After that, the frequency is lowered by approximately 5 once every 60 seconds or approximately 15Hz once every 120 seconds.

When the temperature of the outdoor heat exchanger goes below the overheating prevention clear line, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to 15 Hz without the temperature of the outdoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

Overheating prevention line 1	56°C	Lower 5Hz once every 60 seconds
Overheating prevention line 1	58°C	Lower 15Hz once every 120 seconds
Overheating prevention line 1	55°C	

### (4) Control for prevention of discharge overheating

If the discharge temperature exceeds approximately 105°C during compressor operation, the operating frequency is lowered by approximately 5 Hz.

After that, the frequency is lowered by approximately 5 Hz once every 60 seconds. When the discharge temperature goes below approximately 104°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to 15 Hz without the discharge temperature decreasing and this condition lasts for 1 minute, the compressor will be stopped.

### (5) Control for prevention of indoor heat exchanger freezing

If the temperature of the indoor heat exchanger goes below approximately 5°C during cooling, the operating frequency is lowered by approximately 5 Hz.

After that, the frequency is lowered by approximately 5 Hz once every 60 seconds.

When the temperature of the indoor heat exchanger rises above approximately 5°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the temperature of the indoor heat exchanger goes down to approximately 0°C and this condition continues for 4 minutes, the compressor is stopped.

When the temperature rises above approximately 2°C, normal operation is restored.

## 2-3 Overcurrent protection

### (1) Compressor lock detection

If the set value (3.0 A) of AC current is exceeded at 10 to 30 Hz when operation begins, operation is stopped.

In this case, the compressor outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed.

At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

### (2) DC overcurrent detection, AC overcurrent detection

To protect against overcurrent due to sudden changes in load, the compressor is stopped if the set value 30 A DC is exceeded in the DC section, or the set value 8.5 A AC is exceeded in the AC section.

In this case, the outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed.

At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

## 2-4 Compressor protector control

If the temperature of the compressor chamber exceeds 114°C, the compressor is stopped.

In this case, the outdoor fan does not stop, and when the compressor chamber temperature decreases to 100°C three minutes after operation is stopped, another try will be made.

Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed.

At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

## 2-5 Power transistor module protector

If the temperature of the chips in the power transistor module exceeds 105 °C, the compressor is stopped.

In this case, the outdoor fan does not stop, and when the temperature of the chips in the power transistor module decreases to 105 °C 170 seconds after operation is stopped, another try will be made.

Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed.

At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

## 2-6 Power factor module

If a voltage error (over 400 V), current error (over 17 A), or temperature error (over 90°C) is detected in the power factor module, 170 seconds the compressor is stopped.

In this case, the outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed.

At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

## 2-7 Serial signals

### (1) Serial signals consist of all 96-bit signals.

### (2) If the outdoor unit does not receive a serial signal, it will stop approximately 30 seconds later.

Note that this is true only of normal operation; in test mode, it does not stop and operation takes place based on the test mode commands.

## FUNCTION AND OPERATION OF PROTECTIVE PROCEDURES

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
1	Indoor fan lock	Stops operation if no revolution pulse signal is input from the indoor fan motor for one minute.	When indoor fan is revolving	Operation OFF	No limit	Yes	No
	Indoor fan rpm error	Stops operation if the revolution pulse signal from the indoor fan indicates low rpm (approximately 300 rpm or less).					
2	Indoor freezing guard	Lowest the operating frequency if the temperature of the indoor heat exchanger goes below 5°C during cooling. Stops the compressor if the temperature stays below 0°C for 4 minutes.	During cooling and dry	Automatically restarts when the exchange temperature rises above the freezing prevention temperature (above 2°C)	No limit	No	No
3	Indoor overheating control	Lowest the operating frequency if the temperature of the indoor heat exchanger rises above the overheating temperature during heating. Stops the compressor if the temperature stays above the overheating temperature for 1 minute at 35Hz or less. Set values for overheating temperature During normal operation: 46°C to 54°C During full power operation: 49°C to 58°C	During heating	Automatically restarts when the exchange temperature goes below the overheating temperature.	No limit	No	No
4	DC overcurrent	Stops the compressor if a current of approximately 30A or more flows in the power transistor module. Also stops the compressor if the temperature of the power transistor module exceeds 105°C.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
5	AC overcurrent	Lowest the operating frequency if the compressor AC current exceeds set valve(*). Stops the compressor if the current exceeds at 40Hz or less set valve(*).	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
6	Compressor lock	Stops the compressor if the compressor AC current exceeds 3A immediately after activating the compressor (at 10 to 30Hz).	Immediately after compressor activation.	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes

(\*)

Model	Set value (Normal)	
	During cooling	During heating
AU-X079E	5.8A	—
AU-X099E	6.0A	—
AE-X079E	5.8A	6.3A
AE-X099E	6.0A	6.5A

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
7	Compressor overheating control	Lowers the operating frequency if the temperature of the compressor chamber thermistor (TH1) rises above 105°C. Stops the compressor if the thermistor stays above 105°C for 1 minutes at 35Hz or less.	During compressor operation	Automatically restarts after safety time (170 seconds)	No limit	No	No
8	Compressor high temperature error	Stops the compressor if the compressor chamber thermistor is above 114°C. (Or when TH1 shorts)	During operation	Automatically restarts when thermistor (TH1) temperature falls below 100°C (approximately 30 minutes)	4 times	Yes	Yes
9	Outdoor heat exchanger overheating control	Lowers the operating frequency if the temperature of the outdoor heat exchanger rises above 57°C during cooling. Stops the compressor if the temperature stays above 57°C for 1 minute at 35 Hz or less.	During compressor operation	Automatically restarts after safety time (170 seconds)	No limit	No	No
10	Outdoor thermistor short	Stops the compressor if an outdoor thermistor (excluding TH1) shorts.	When compressor is activated	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
11	Outdoor thermistor open	Stops the compressor if the circuit of an outdoor thermistor breaks.	When compressor is activated	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
12	AC abnormal current error	Stops the compressor if the operating frequency is above 85 Hz and the compressor current is below 1.0 A.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
13	Serial signal error	Turns the compressor relay off if the indoor unit does not receive a serial signal from the outdoor unit for 8 minutes.	During operation	Automatically restarts less than 8 minutes after operation stops	No limit	Yes	—
		Stops the compressor if the outdoor unit does not receive a serial signal from the indoor unit for 30 seconds.	During operation	Restarts after reception of serial signal	No limit	—	Yes
14	Power factor module (Active filter) error	When an power factor module error input is detected.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes

**BREAK DOWN DIAGNOSIS PROCEDURE**

Self-diagnostic procedure using display mode

If the timer lamp blinks during operation, the problem can be diagnosed using the following table.

● : Blinks at 2-second intervals    × : OFF    ○ : ON    ◎ : Blinks 3 times at 0.2-second intervals

Condition of indoor and outdoor unit	Display by indoor unit operation lamp Displayed in a pattern which comes on at the same time as the timer lamp → ○ × ○ × ○ × ○ × ○ × ○ → 4 seconds off		Display by outdoor unit lamp LED 1	Diagnosis	What to check, procedure	Solution
Normal	×	×	×	×	×	×
Indoor and outdoor unit completely stopped	×	×	○	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
	×	×	×	×	×	×
Indoor unit operating Outdoor unit completely stopped	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×
	○	×	×	×	×	×

Note: 1. Normal : Only the timer lamp blinks. Error : Displayed by blinking of run lamp (above table).

2. If the power plug is removed from the outlet or the breaker is switched to "OFF", the self-diagnostic memory will be erased.

3. Example of outdoor unit LED 1 blinking :

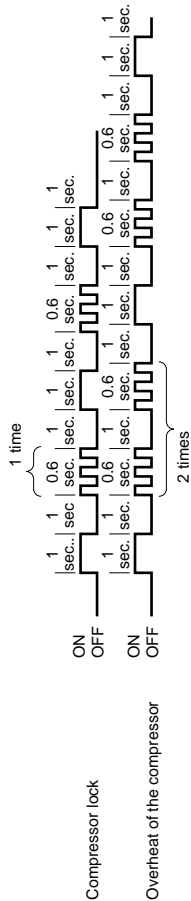


Figure 1 Temperature properties of indoor thermistor's

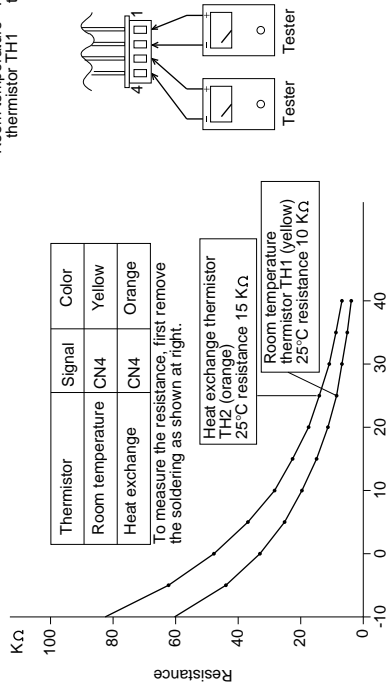
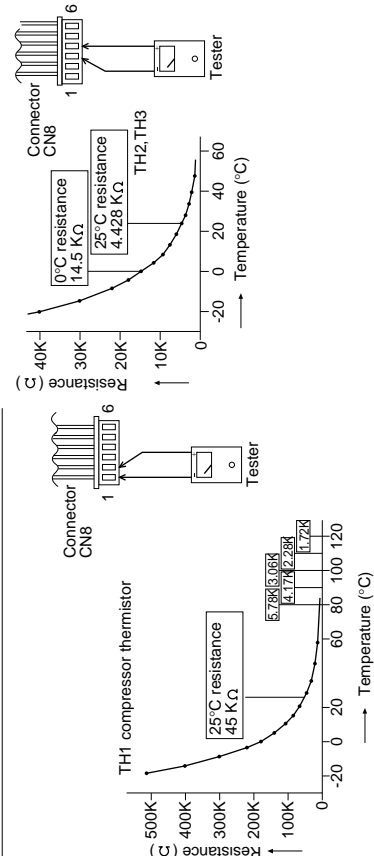


Figure 2 Temperature properties of outdoor thermistors

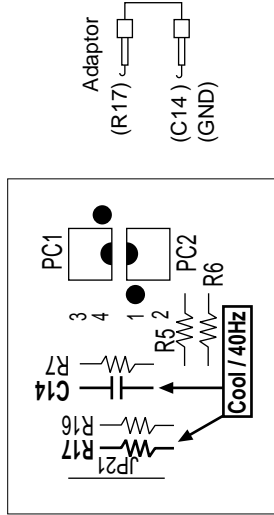


Thermistor	No.	Connector	Color
Compressor thermistor	TH1	No. 1 to 2	Red
Heat exchanger pipe thermistor	TH2	No. 3 to 4	Orange
Outdoor temp. thermistor	TH3	No. 5 to 6	Green

To measure the resistance, first remove the connector from the board.

### Cautions when attaching or removing the board

When operating only the outdoor unit (cooling 40 Hz fixed mode) To make only the outdoor unit run in cooling mode, short the places marked with arrows below with an adaptor, and apply a voltage of 220 ~ 240 V AC to 1 and N on the terminal board.  
(Avoid operating the outdoor unit alone for long periods of time.)



To Outdoor control board

Microcomputer terminal	Input signal
Pin No. 43	0 ..... Low input
Pin No. 42	1 ..... High input



## REFRIGERATION CYCLE

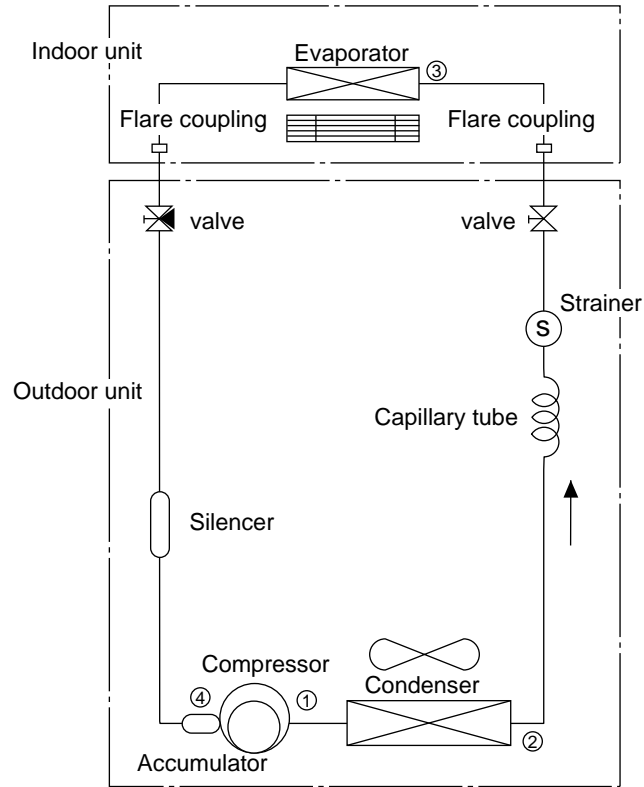


Figure R-1. Refrigeration Cycle for AH-X079E/X099E

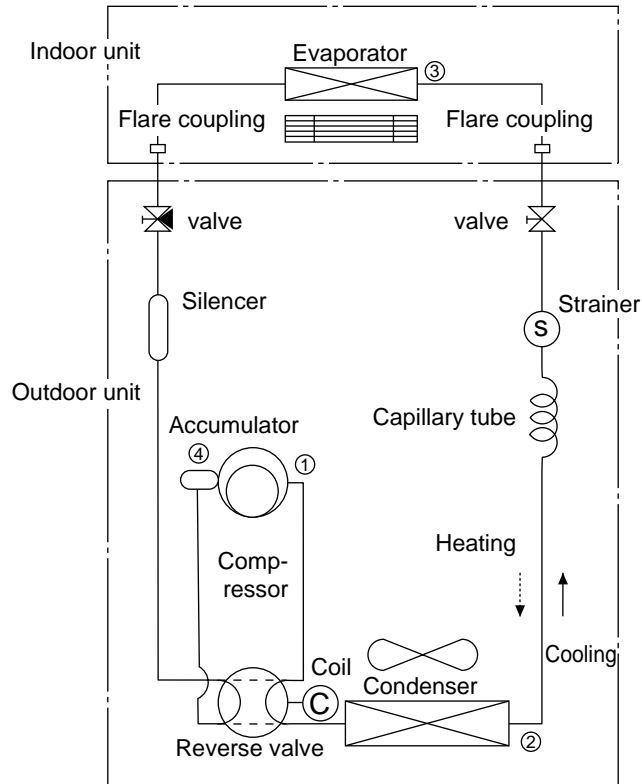


Figure R-2. Refrigeration Cycle for AY-X079E/X099E

**Standard conditions:**

**AH-X079E / AH-X099E**

	Indoor side		Outdoor side	
	Dry-bulb Temp. (°C)	Relative Humidity (%)	Dry-bulb Temp. (°C)	Relative Humidity (%)
Cooling	27	47	35	40

**Temperature at each part and pressure in 3-way valve**

**AH-X079E**

Operation mode	Cool (Max.)	Cool
No. / Hz	69	50 settle
①	90°C	78°C
②	41°C	41°C
③	10°C	11°C
④	3°C	7°C
3-way valve pressure (kg/cm <sup>2</sup> G)	4.4	5.2

**AH-X099E**

Operation mode	Cool (Max.)	Cool
No. / Hz	75	50 settle
①	96°C	80°C
②	39°C	40°C
③	12°C	13°C
④	5°C	7°C
3-way valve pressure (kg/cm <sup>2</sup> G)	4.4	5.5

**Dimension of Capillary tube**

**AH-X079E**

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.5	800

**AH-X099E**

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.5	700

**Standard conditions:****AY-X079E / AY-X099E**

	Indoor side		Outdoor side	
	Dry-bulb Temp. (°C)	Relative Humidity (%)	Dry-bulb Temp. (°C)	Relative Humidity (%)
Cooling	27	47	35	40
Heating	20	—	7	87

**Temperature at each part and pressure in 3-way valve****AY-X079E**

Operation mode	Cool (Max.)	Heat (Max.)	Cool	Heat
No. / Hz	53	more than 70	50 settle	50 settle
①	105°C	104°C	85°C	77°C
②	42°C	0°C	42°C	2°C
③	10°C	40°C	10°C	38°C
④	16°C	2°C	10°C	1°C
3-way valve pressure (kg/cm <sup>2</sup> G)	4.6	20.0	5.3	15.5

**AY-X099E**

Operation mode	Cool (Max.)	Heat (Max.)	Cool	Heat
No. / Hz	75	more than 80	50 settle	50 settle
①	100°C	98°C	81°C	72°C
②	44°C	0°C	42°C	2°C
③	11°C	41°C	12°C	37°C
④	7°C	-2°C	10°C	0°C
3-way valve pressure (kg/cm <sup>2</sup> G)	4.5	19.5	5.6	15.3

**Dimension of Capillary tube****AY-X079E**

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.4	700

**AY-X099E**

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.5	800

# PERFORMANCE CURVES

NOTE: 1) Indoor fan speed: Hi  
2) Vertical adjustment louver "45°", Horizontal adjustment louver "front"  
3) Indoor air temp. : 27°C

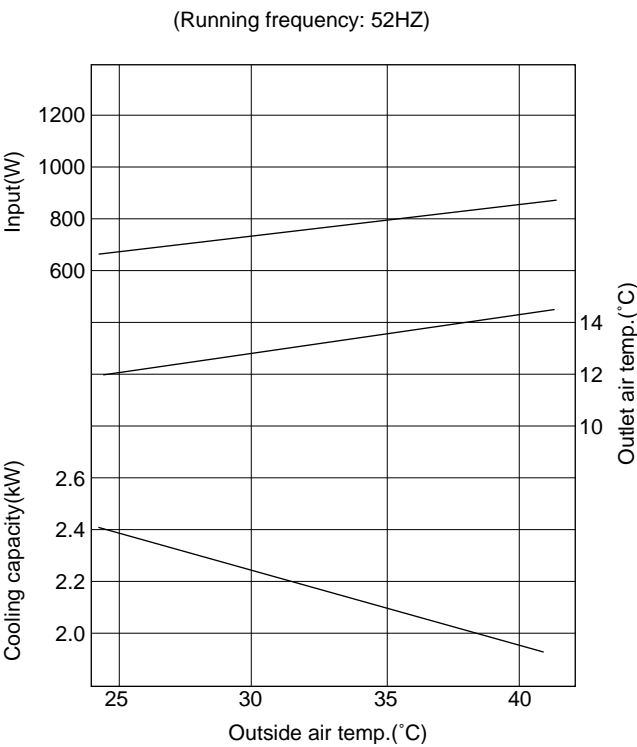


Figure P-1. At Cooling for AH-X079E

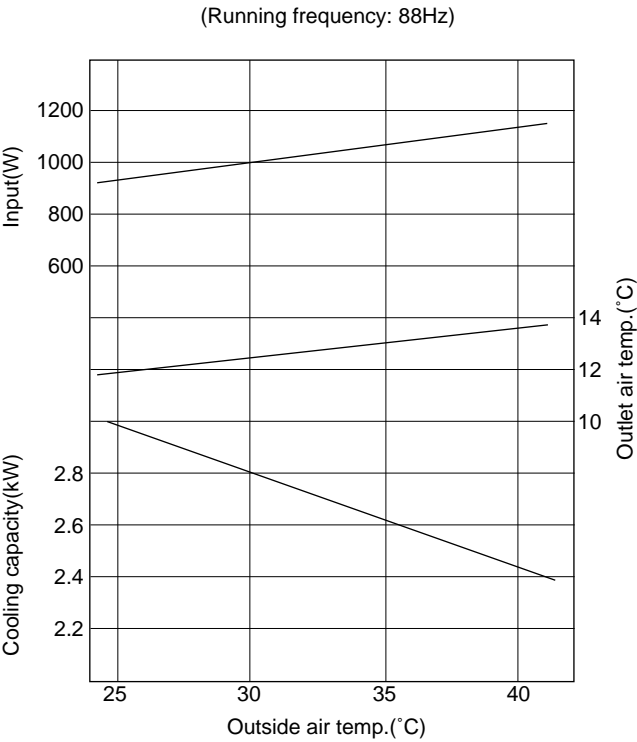
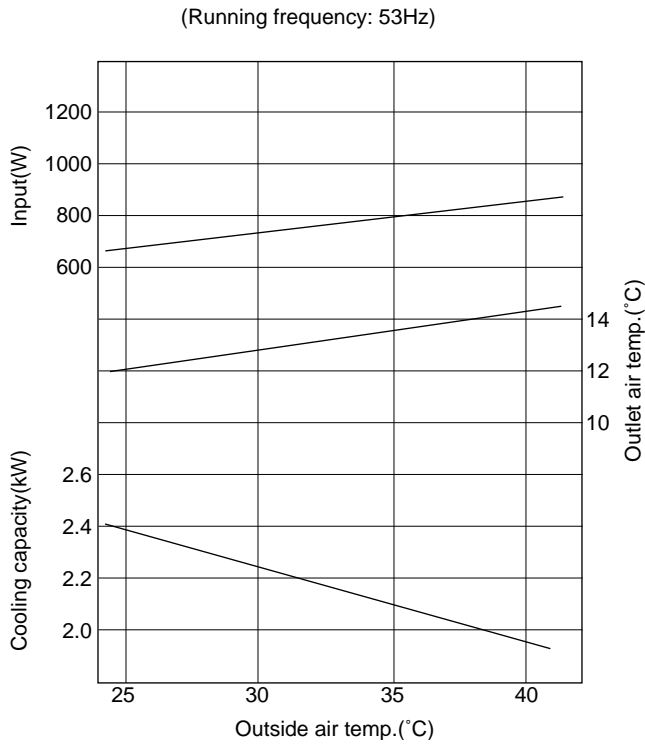
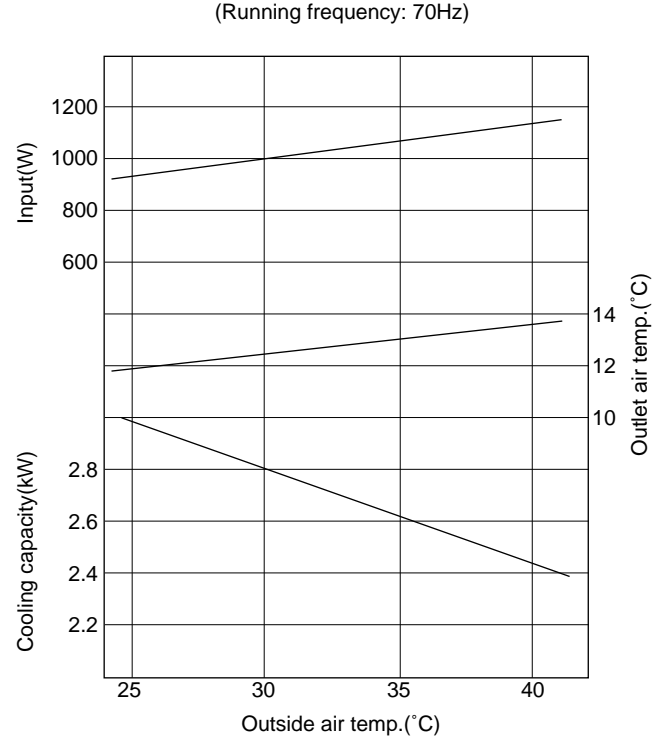


Figure P-2. At Cooling for AH-X099E

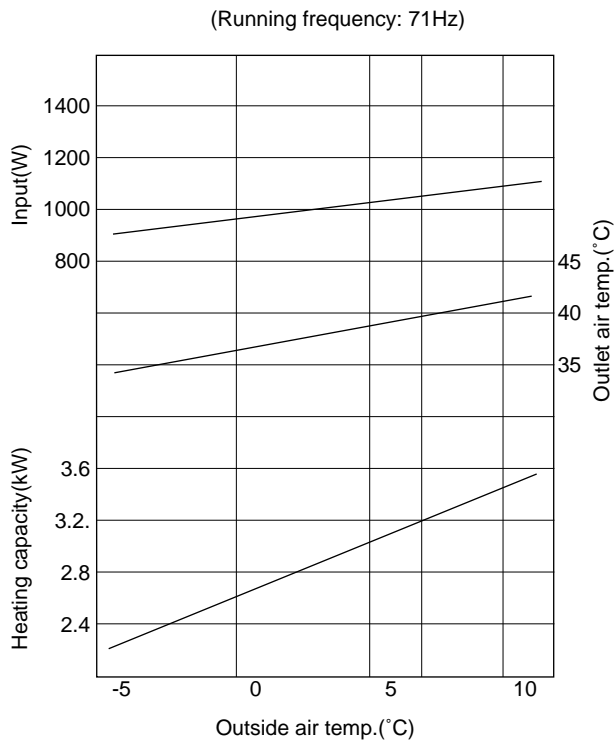
NOTE: 1) Indoor fan speed: Hi  
2) Vertical adjustment louver "45°", Horizontal adjustment louver "front"  
3) Indoor air temp. : Cooling 27°C, Heating 20°C



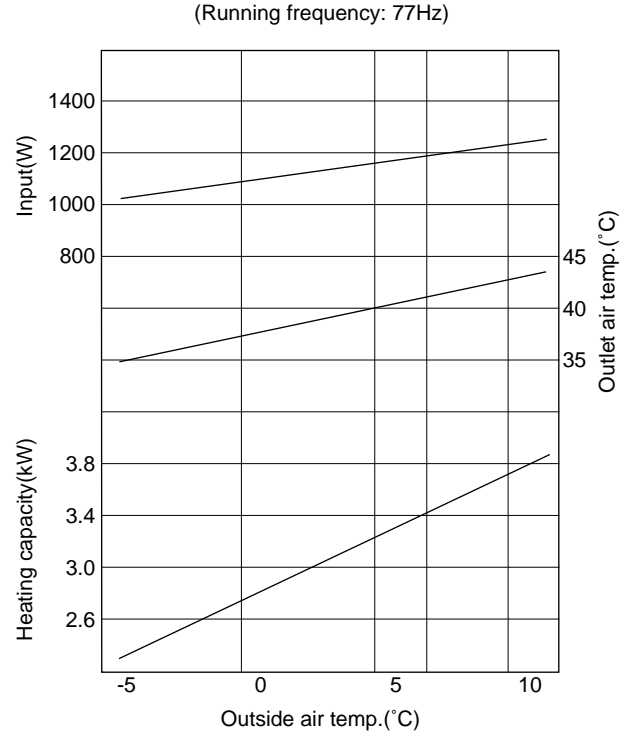
**Figure P-3. At Cooling for AY-X079E**



**Figure P-4. At Cooling for AY-X099E**



**Figure P-5. At Heating for AY-X079E**



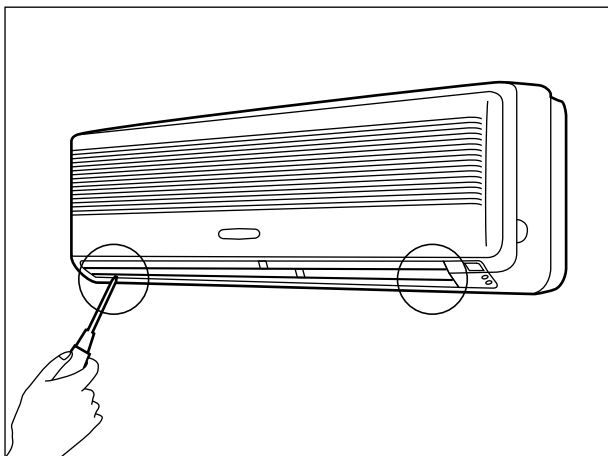
**Figure P-6. At Heating for AY-X099E**

## DISASSEMBLING PROCEDURE

FOR INDOOR UNIT MODEL AH-X079E/X099E AND AY-X079E/X099E

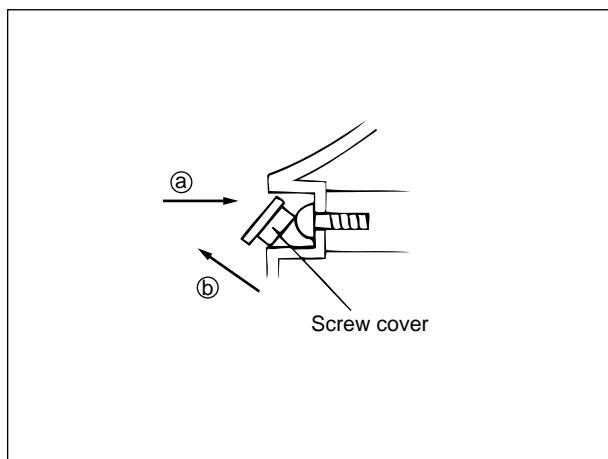
**CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING**

1. Using the narrow slotted screwdriver or similar, remove the screw cover from the front panel.
3. Open the open panel, and remove the right air filter.

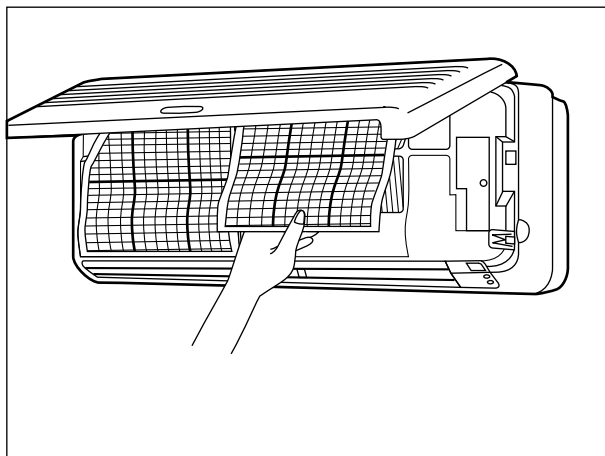
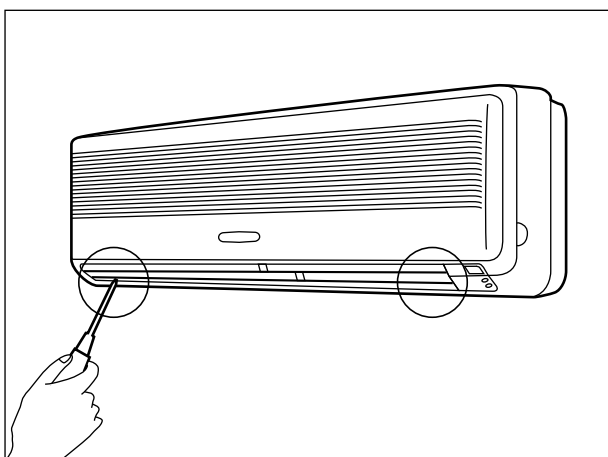


### How to remove the screw cover

- a. Press the top of the screw cover with the flat-tipped screwdriver (or nail, etc).
- b. Insert the flat-tipped screwdriver (or nail, etc) into the lower clearance, and pull and lift it toward you for removal.

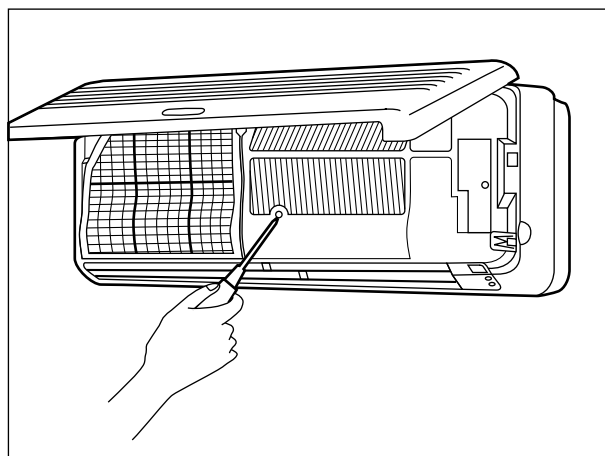


2. Remove two screws from the front panel.



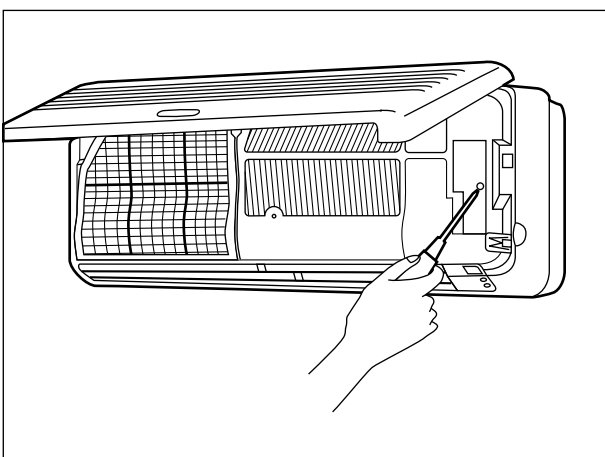
4. Remove one inner screw.

**Note: During reassembly, don't tighten the screw strongly, or it will become idle.**

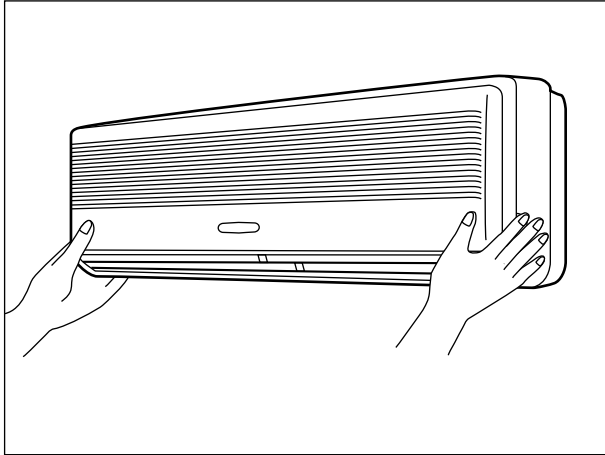


5. Remove the fastening screw which retains the cable, and remove the cord.

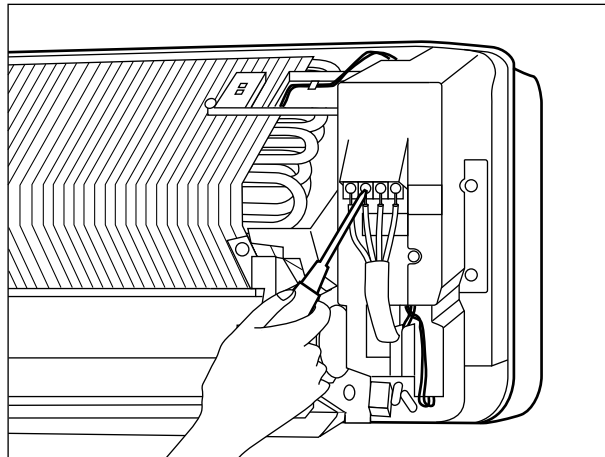
**Note: During reassembly, install the holder after installing the front panel. This will make it easier to assemble the front panel.**



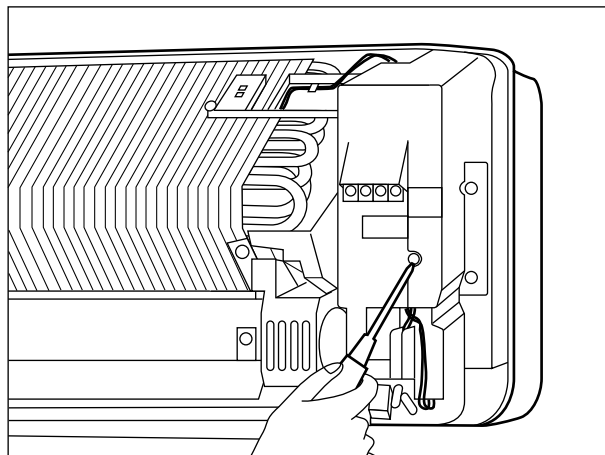
6. After closing the open panel, open the vertical adjustment louver and pull out the bottom of the front panel toward you. Lifting the front panel, strongly pull the top toward you. Making the front panel parallel to the main body, strongly pull it toward you for removal. To install the front panel, place the bottom of the front panel under the open vertical adjustment louver, and press in the front panel, parallel to the cabinet. When pressing it in, take care to prevent the top of the blow-out port of the drain pan from being caught by the front panel.



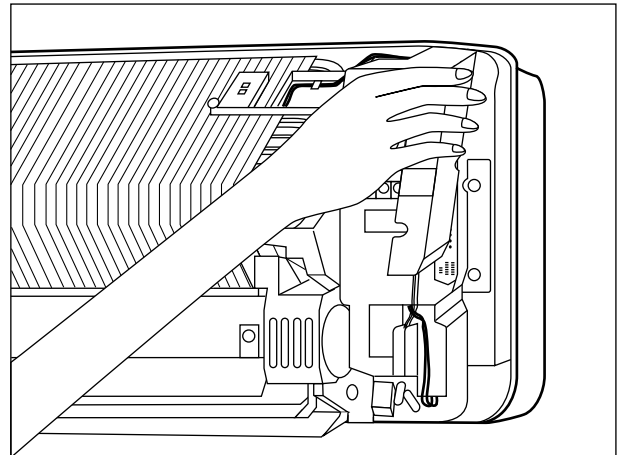
7. Remove the unit-to-unit wiring from the terminal board. (Loosen the screw with the screwdriver, and pull out the wiring.)



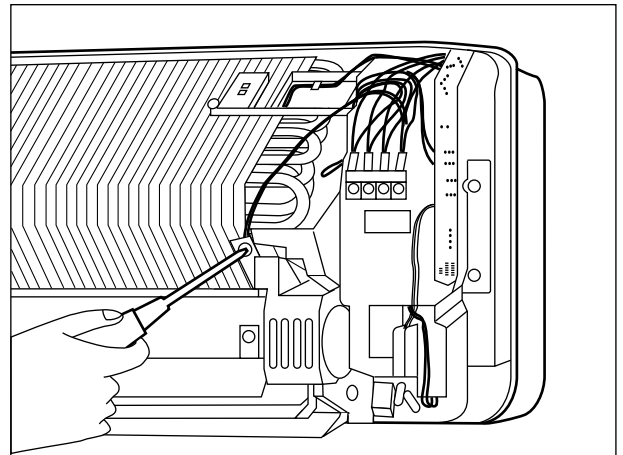
8. Remove one fastening screw from the control box cover.



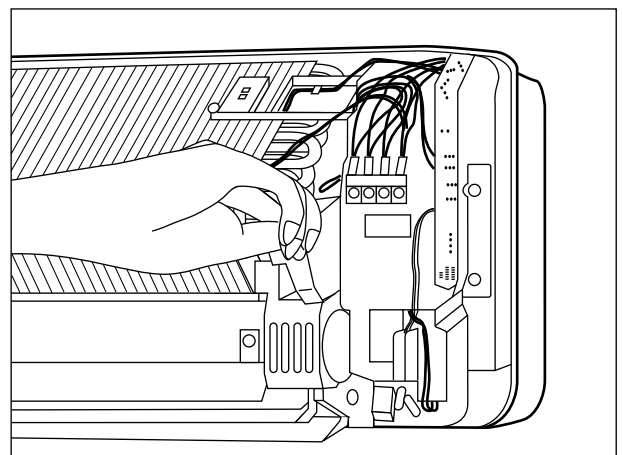
9. Remove the control box cover. Holding its bottom, pull and disengage the upper hook toward the bottom.



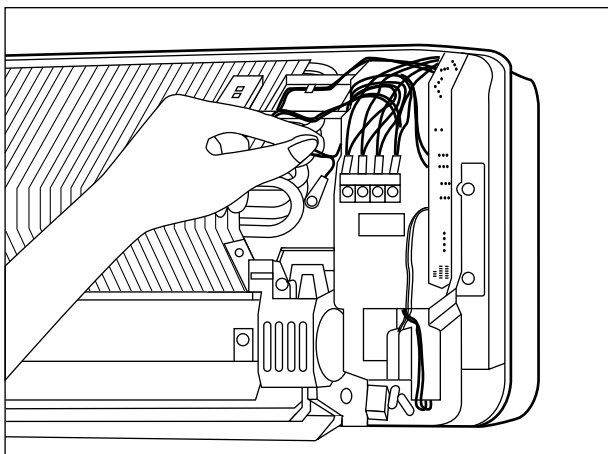
10. Remove the ground wire. (One screw)  
**Note:** During reassembly, take care for the direction of the lead wire.



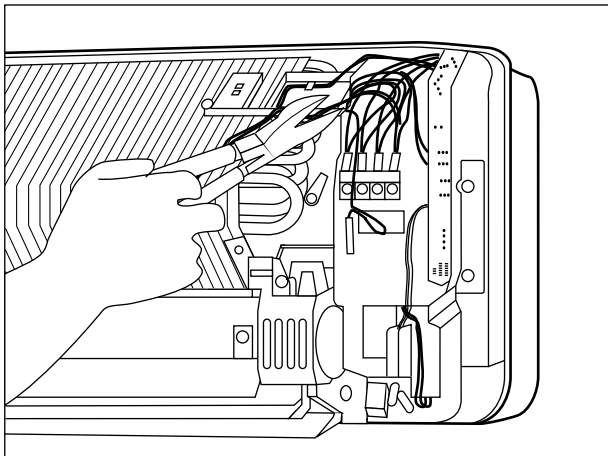
11. Remove the protect cover for the dew.  
**Note:** During reassembly, verify that the dew on the pipe is led to the drain pan.



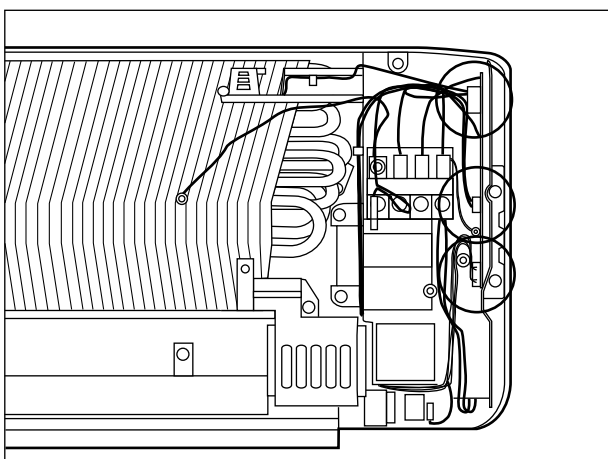
12. Remove the thermostat of the evaporator.  
(Pull it out after peeling off the thermoseal.)



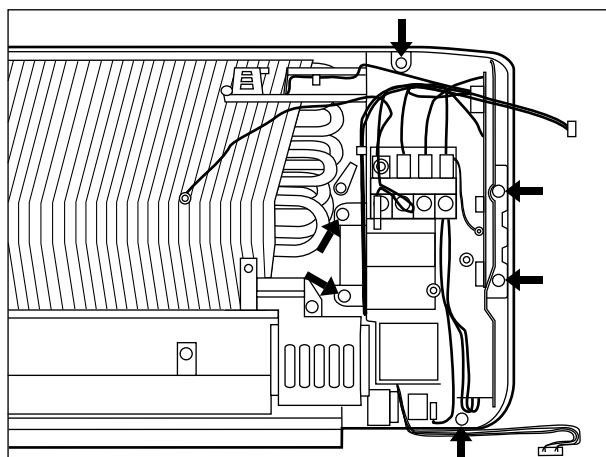
13. Cut the tie band of the lead wire.



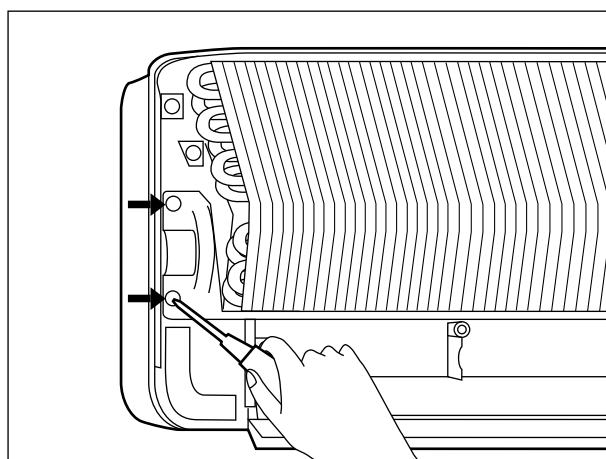
14. Remove two connectors of the fan motor and one of louver motor.



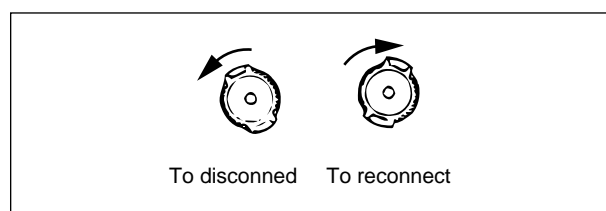
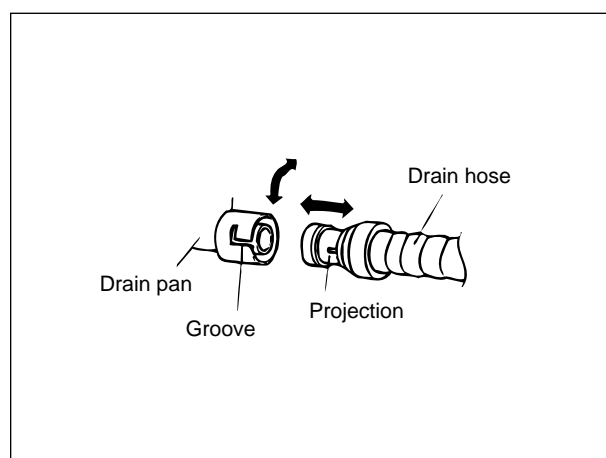
15. Remove six fastening screws of the control box, and remove the control box.



16. Remove the fastening screws of the drain pan. (Two screws on the left side).

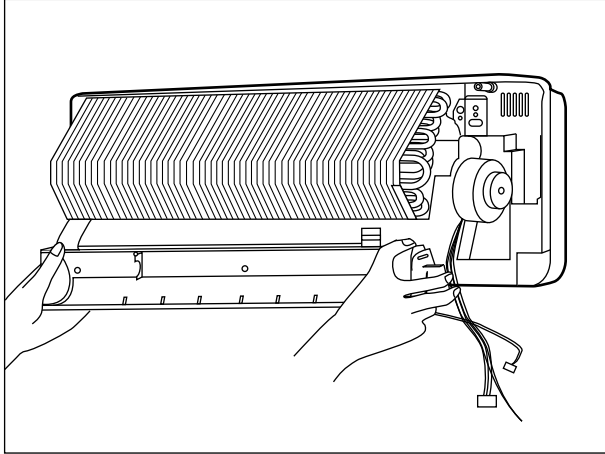


17. Turn the cap area of the drain hose counterclockwise, and remove it from the drain pan.  
During installation, turn the drain hose to the state of the "engagement position".  
After reinstallation, verify that it is securely fastened.

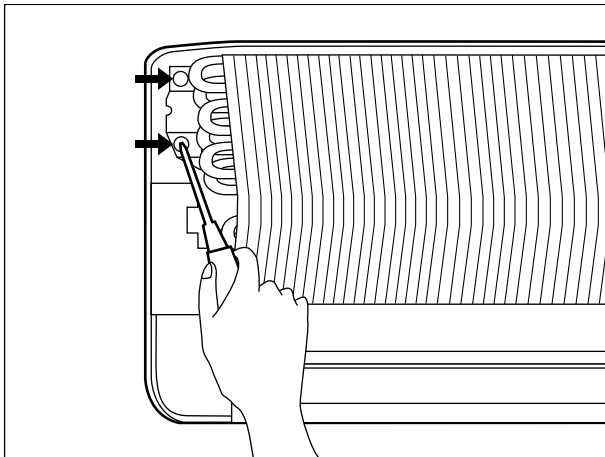




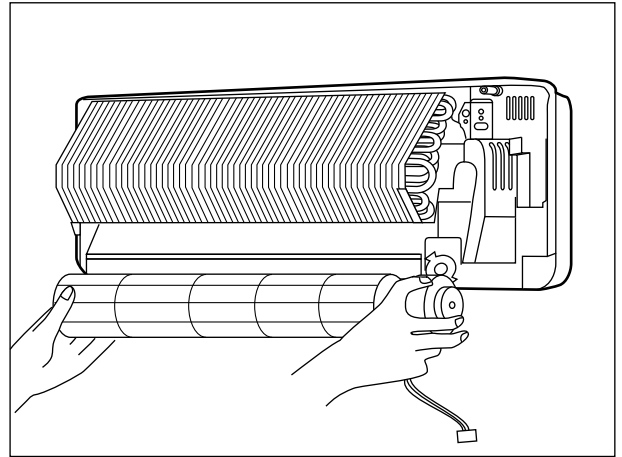
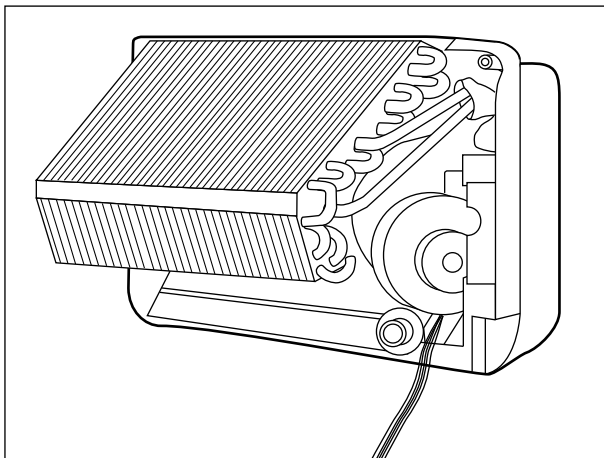
18. Pull down the drain pan toward you for removal.



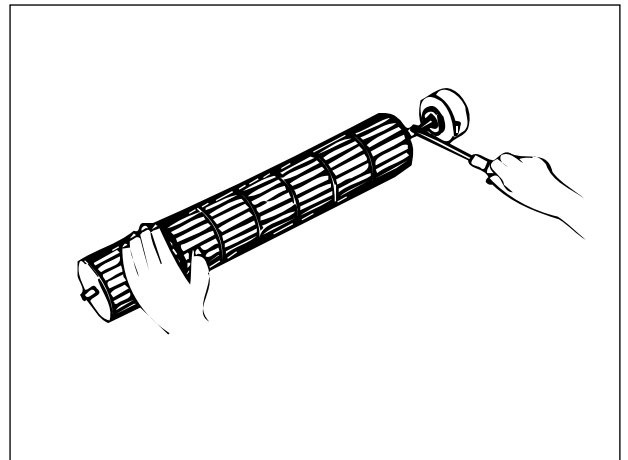
19. Remove two fastening screws of the evaporator.



20. Move the evaporator to the right, and release it from two hooks. Free the evaporator, and pull down the cross-flow fan and motor toward you. Remove them together. (If it is tried to remove the fan alone, it will damage the inner surface of the metal fan boss to prevent removing the fan.)



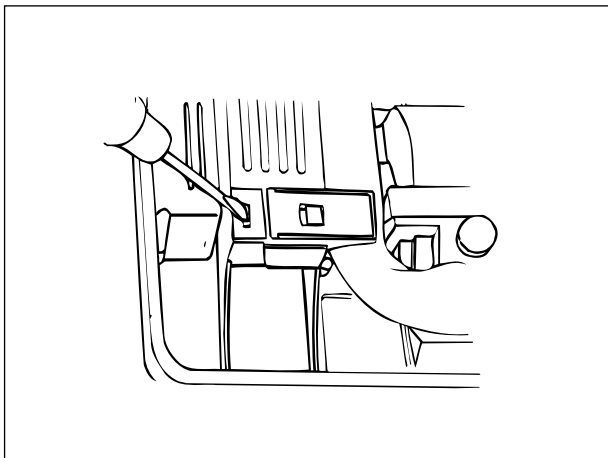
21. Loosen the fan fastening screw, and remove the fan.



**<Cautionary points for assembling the fan>**

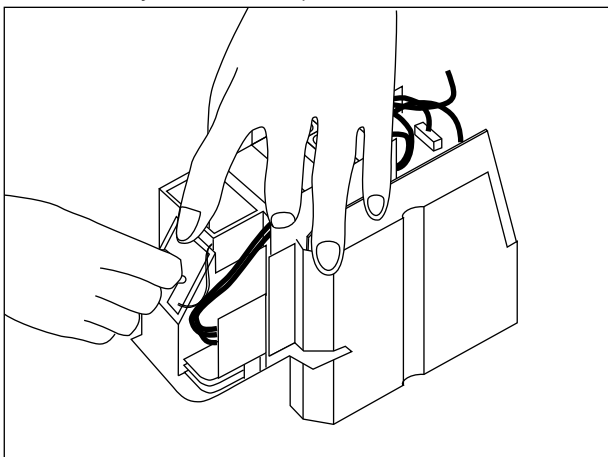
- a. When inserting the motor shaft into the metal fan boss, take care to prevent injuring the inner surface of the metal fan boss.
- b. Before fastening the motor shaft and fan, insert the motor shaft into contact with the bottom of the metal fan boss.

22. To remove the evaporator, remove the tube holder on the rear side of the cabinet, slightly lift the left side, slide it to the right, and remove it from the cabinet, pulling it toward you.

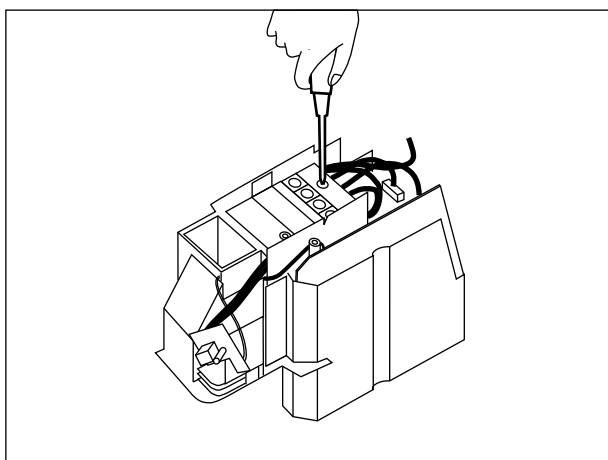


#### How to remove the electric control box.

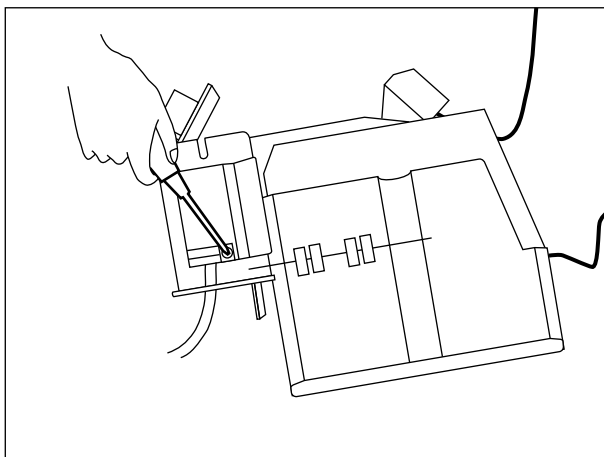
1. Remove the indicator assembly.  
(Press and spread the upper hook, and the indicator will be ready for removal.)



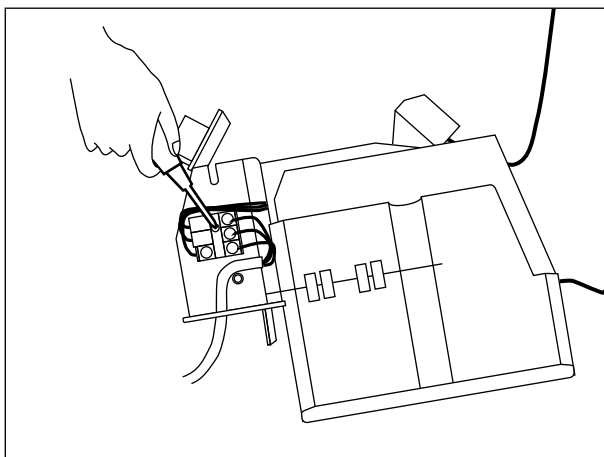
2. Remove the fastening screw of the terminal board.



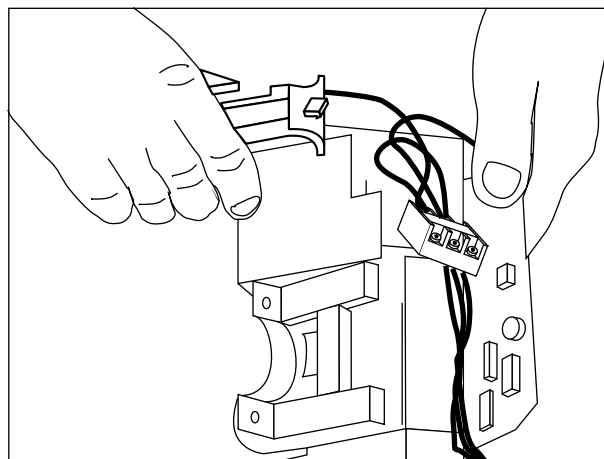
3. Remove the cord holder fastening screw of the power supply cord.



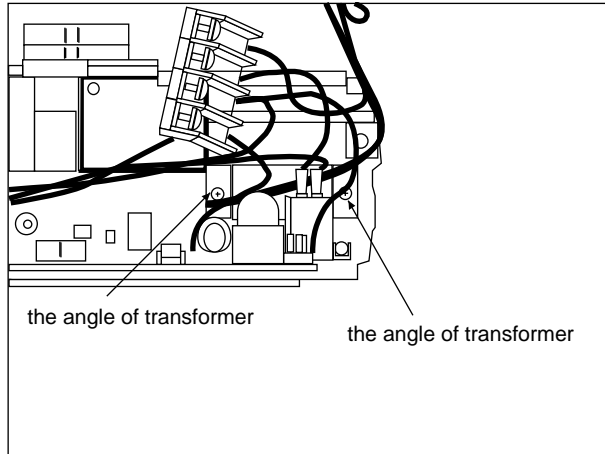
4. Remove the terminal board fastening screw of the power supply cord.



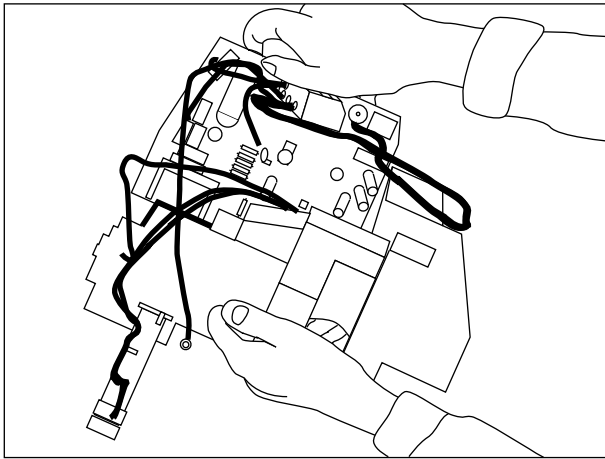
5. Remove the thermostat holder from the control box.



Remove the board fastening screws.



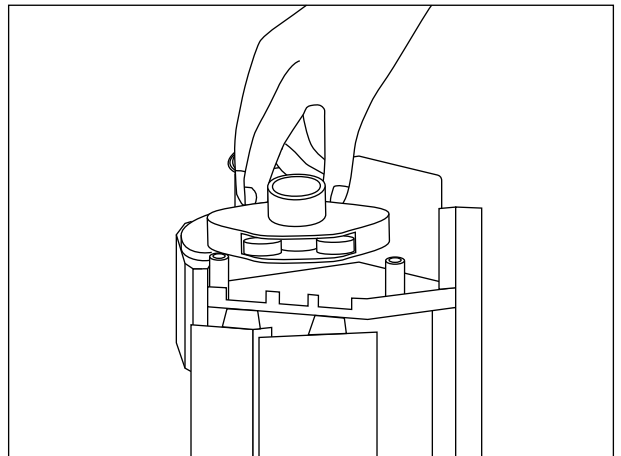
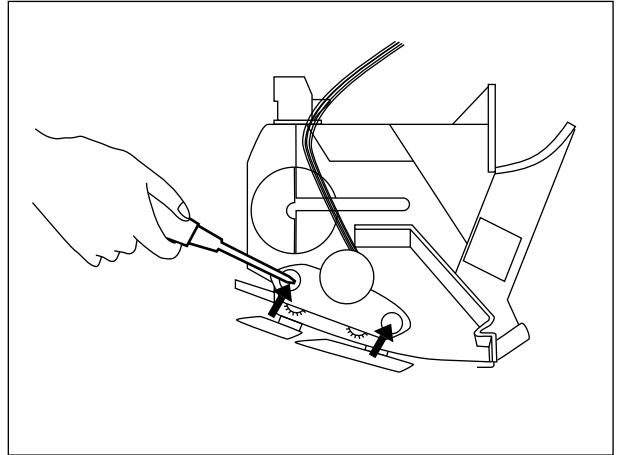
Pull out the board.



### Drain pan and related

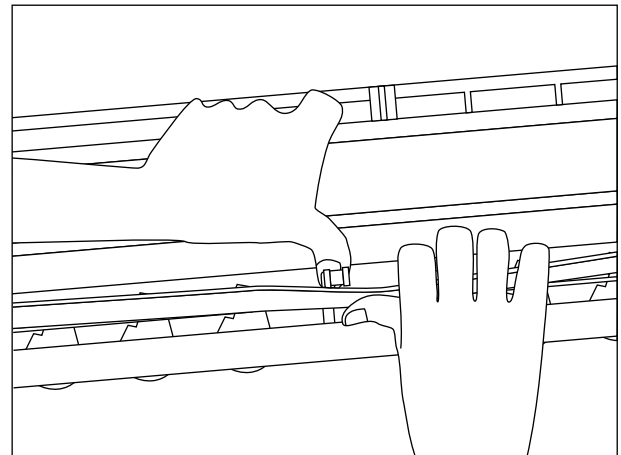
How to remove the gear box assembly  
Remove two screws which fasten the gear box assembly.

**Note** When installing the gear box assembly, fit it, aligning the notch shape of the groove of the vertical adjustment louver.



### How to remove the vertical adjustment louver

Slightly fall down the hinge area, deflect the louver, and remove it at one place. Remove the shaft from each of the left and right sides.

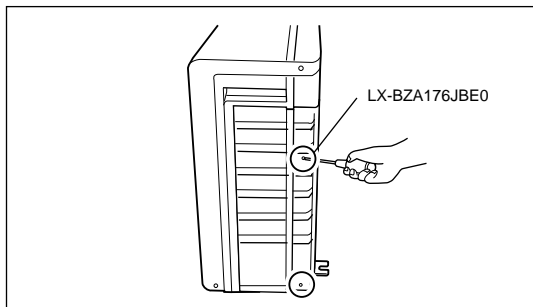


## SERVICING PROCEDURE

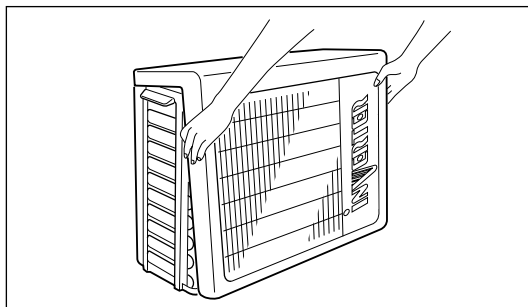
FOR OUTDOOR UNIT MODEL AU-X079E/X099E AND AE-X079E/X099E

**CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING**

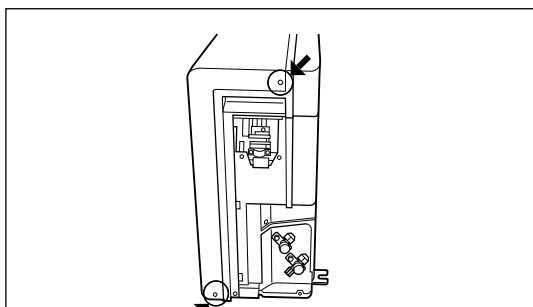
1. Remove the lid of the control box. (2 screws)  
Disconnect the unit-to-unit wiring from the terminal board.



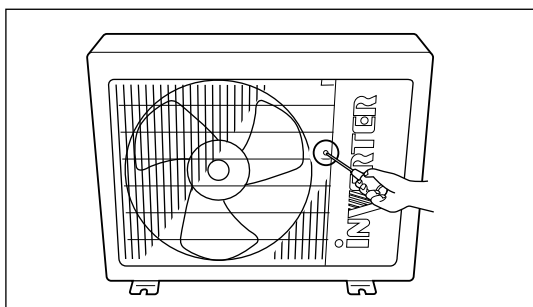
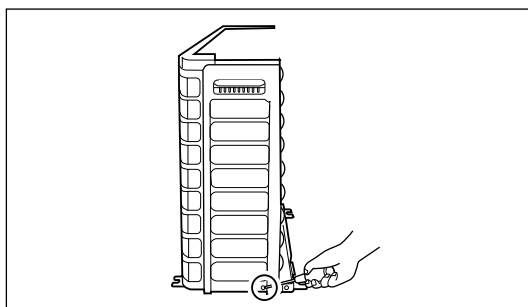
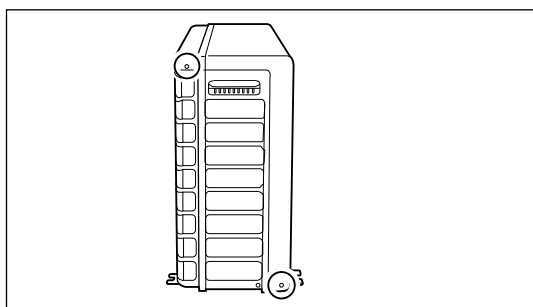
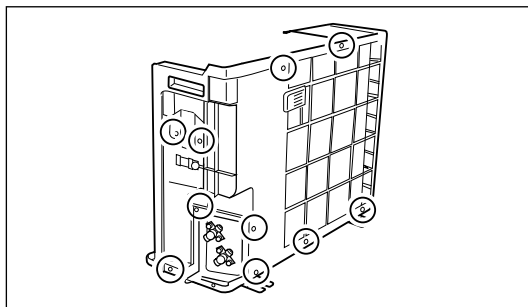
3. Remove the front panel assembly.  
Pulling the bottom toward you, disengage 3 hooks on the rear surface.



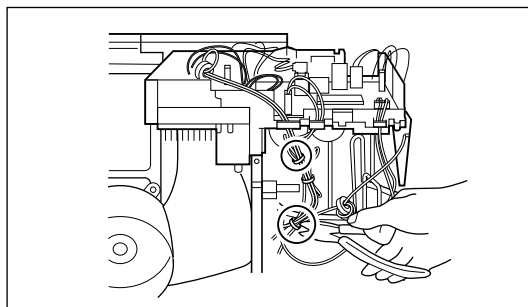
2. Free the front panel assembly.  
Remove 2 screws from each of the right and left sides and one screw from the front side.



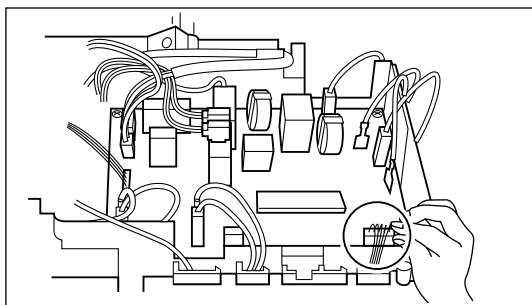
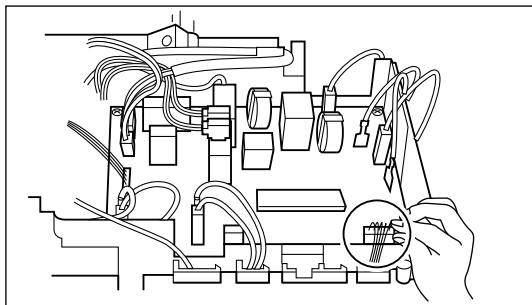
4. Remove 11 screws which fasten the rear panel assembly. (Even though the rear panel assembly is not removed, most of the services are possible.)



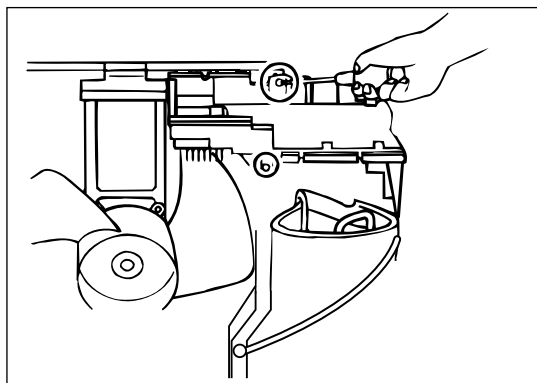
5. Cut the tie band. (2 places)



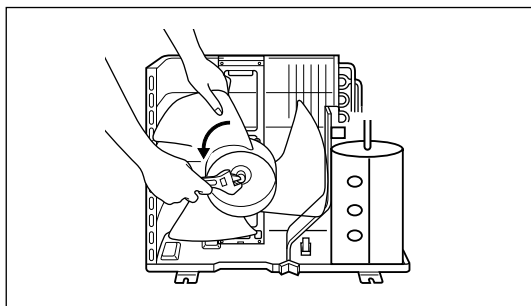
6. Disconnect the connector. (3 places)  
Disconnect the Faston terminal. (9 places)  
Remove the 3 screws of the control PWB, and the control circuit will be ready for removal from the control box.



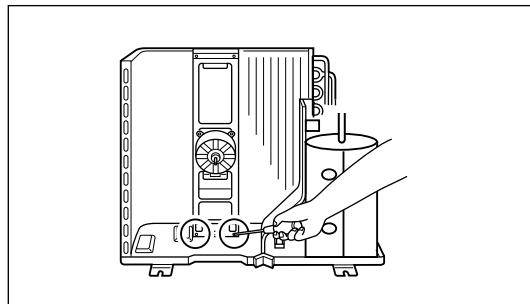
7. Remove 2 fastening screws of the control box.  
Remove small screw which fasten the ground cable.



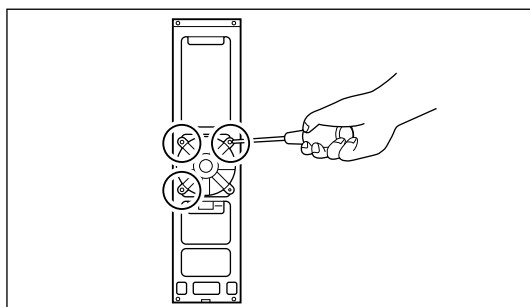
8. Remove the outdoor fan.



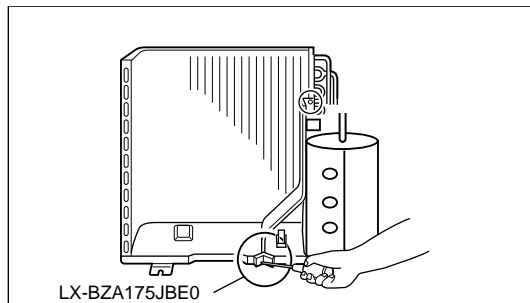
9. Remove 2 screws which fasten the motor angle.  
Pull up the motor angle for removal.  
(During reassembling, treat the lead wire to prevent it from being in contact with the propeller fan.)



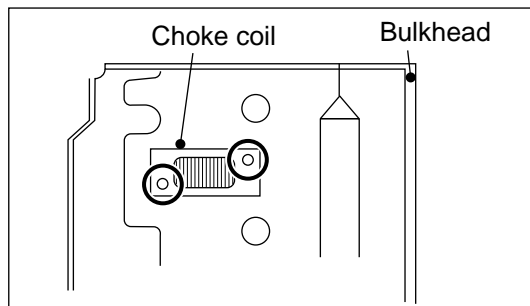
10. Remove 3 motor fastening screws, and remove the motor.



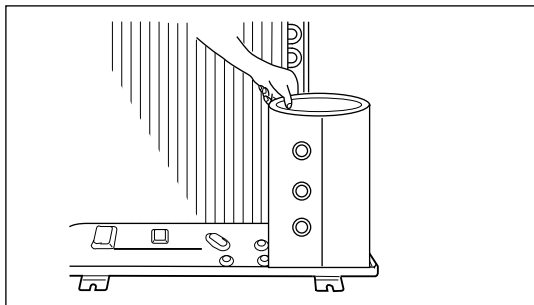
11. Remove the bulk head.  
Remove 2 fastening screws. Lifting the bulk head, remove 2 inner hooks.



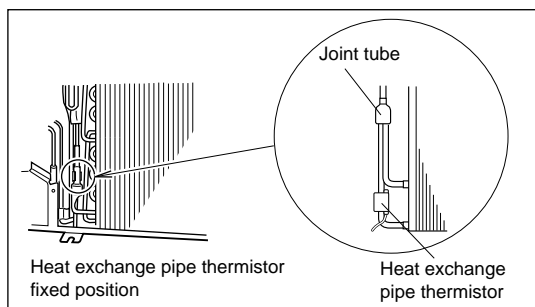
12. Remove 2 screws which fasten the choke coil on the bulkhead, and remove the choke coil.



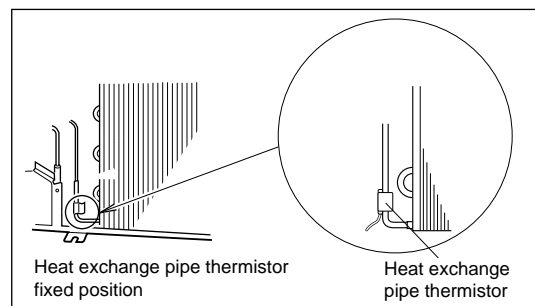
13. Remove the compressor cover.



14. Remove the thermostat of the heat exchanger.  
[AE-X079E/AE-X099E]



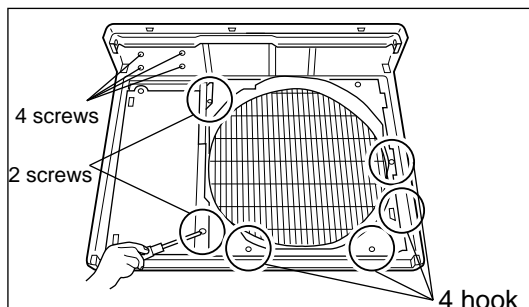
[AU-X079E/AE-X099E]



15. Remove the front panel assembly.

Orifice	2 screws	4 hooks
Control cover	4 screws	
Wire guard	4 screws	

Remove these screws and disengage these hooks.



16. Cautions when replacing the Power Factor Module, Power Transistor Module, or Diode Bridge

- (1) The screws should be firmly tightened at the torque of 8 to 10 kg f cm (78.4 to 98 N).
- (2) For the Power Transistor Module or Diode Bridge, be sure to insert the silicon sheet between it and radiator plate.
- (3) For the Power Factor Module, the silicon grease should be evenly applied between it and radiator plate.

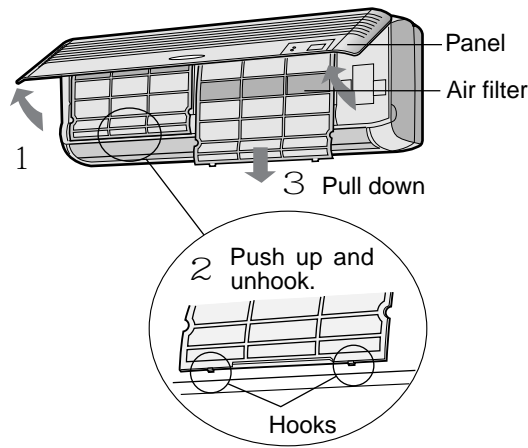
## OPTION

### HOW TO REPLACE THE AIR PURIFYING FILTER (AZ-F905; Electrostatic Type (2-sheet package))

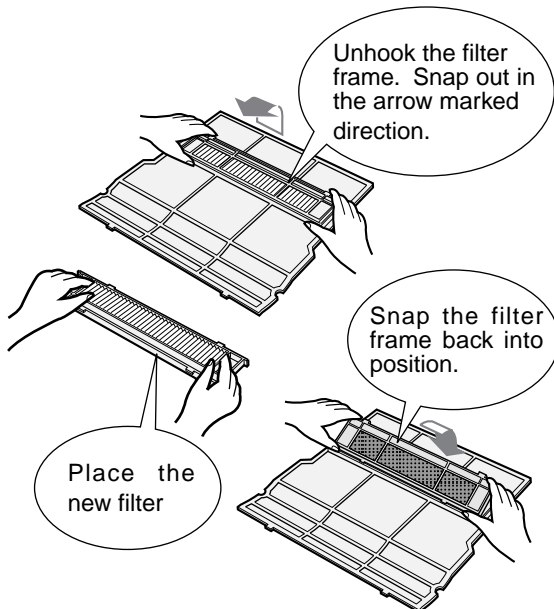
#### Precautions

- » The filters are sealed in a plastic bag to keep their dust collection effect. Do not open the bag until using the filters. (Otherwise the filters' life may get shorter.)
- » Do not expose the filters to direct sunlight. (Otherwise they may deteriorate.)

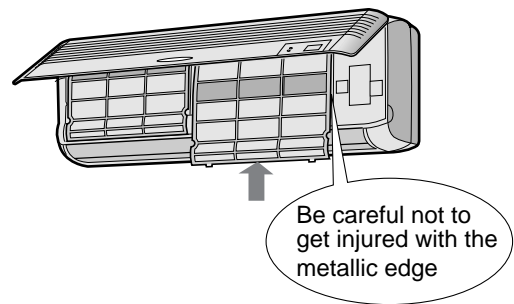
1 Open the panel and take out the air filters.



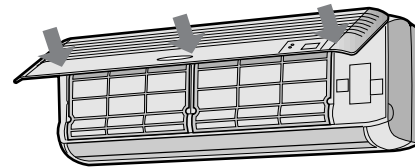
2 Replace the old air purifying filters with new ones.



3 Slide the air filters into position.



4 Close the panel.



#### REPLACEMENT INTERVALS GUIDELINE

**Replace the air purifying filters at the intervals of 3-6 months.**

- » The dirty filters are not washable for reuse. The filters are available at your nearest dealer.

## REPLACEMENT PARTS LIST [AH/AY-X079E/X099E]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
<b>CABINET AND UNIT PARTS</b>				
1- 1	CMOT-A263JBEO	Fan motor sub assembly	1	BH
1- 2	PGUMMA071JBEO	Motor cushion	1	AN
1- 3	CHLD-A050JBK0	Bearing assembly	1	AG
1- 4	DCHS-A352JBK0	Cabinet assembly	1	BA
1- 5	NFANCA058JBEO	Cross flow fan	1	AS
1- 6	CSRA-A443JBK0	Drain pan assembly	1	BK
1- 7	CMOTLA486JBEO	Fan motor	1	BM
1- 8	MJNTPA058JBFA	Louver link	2	AC
1- 9	MLOV-A184JBFA	Horizontal adjustment louver	10	AB
1-10	MLOV-A172JBFC	Vertical adjustment louver	1	AN
1-11	MLOV-A173JBFC	Vertical adjustment louver	1	AK
1-12	QW-VZC406JBEO	Fan motor wire	1	AK
1-13	LHLD-A197JBFP	Louver holder	2	AX
1-14	NBRG-A026JBFA	Louver bushing	2	AB
1-15	PBOX-A186JBK0	Louver gear assembly	1	BA
1-16	CHOS-A004JBK0	Drain hose assembly	1	AM
1-17	PPACGA010JBEO	O ring	1	AB
1-18	DCOV-A138JBFB	Blow cover	1	AL
1-19	RMOT-A061JBEO	Louver motor	1	AS
1-20	PGUMMA110JBEO	Drain cap	1	AD
1-21	CWAK-B850JBK0	Front panel assembly	1	BD
1-22	CPNL-A300JBK0	Open panel assembly	1	AV
1-23	HBDG-A059JBFA	Badge	1	AF
1-24	DDEC-A193JBK0	Display cover assembly	1	AF
1-25	PFILMA088JBFA	Air filter	2	AK
1-26	LHLD-A187JBFB	Tube holder	1	AC
1-27	HPNL-A195JBEB	Open panel	1	AS
1-28	TSPC-C948JBRA	Name label [AH-X079E]	1	AD
1-28	TSPC-C946JBRA	Name label [AH-X099E]	1	AD
1-28	TSPC-C947JBRA	Name label [AY-X079E]	1	AD
1-28	TSPC-C918JBRA	Name label [AY-X099E]	1	AE
1-29	LHLD-A297JBFB	Motor holder	1	AE
1-30	PGUMMA082JBEO	Motor cushion	1	AD
1-31	GWAK-A203JBFC	Front panel	1	AT
1-32	PCOV-A306JBFO	Drain cover	1	AE
1-33	TLABCB148JBR0	Wiring diagram	1	AE
1-34	QW-VZC500JBEO	Louver motor wire	1	AF
1-35	LHLD-A303JBFA	Tube cover	1	AD
1-36	PSEL-B554JBEO	Aluminum tape	1	AB
1-37	PSEL-B555JBEO	Aluminum tape	1	AB
1-38	PSEL-B556JBEO	Aluminum tape	1	AB
1-39	PSEL-B557JBEO	Aluminum tape	1	AB
1-40	PSEL-B559JBEO	Aluminum tape	1	AB
1-41	PSEL-B558JBEO	Aluminum tape	1	AB

### CONTROL BOX

2- 1	RTHM-A300JBEO	Thermistor	1	AP
2- 2	PBOX-A191JBFO	Control box	1	AP
2- 3	LHLD-A313JBFO	Cord holder	1	AC
2- 4	LHLD-A282JBFO	Thermistor holder	1	AG
2- 5	PCOV-A300JBFO	Thermistor holder cover	1	AB
2- 6	HPNLCA578JBFA	Control box cover	1	AF
2- 7	HPNLCA595JBFA	Control panel	1	AC
2- 8	PCOV-A278JBFO	LED holder	1	AH
2- 9	LPLTMA147JBW0	Control box angle	1	AF
2-10	DPWBFA145JBK0	Electric control board [AH-X079E]	1	BR
2-10	DPWBFA144JBK0	Electric control board [AH-X099E]	1	BR
2-10	DPWBFA143JBK0	Electric control board [AY-X079E]	1	BN
2-10	DPWBFA142JBK0	Electric control board [AY-X099E]	1	BN
2-11	QACC-A176JBEO	Power supply cord	1	AY
2-12	QTAN-A152JBEO	Terminal board	1	AN
2-13	QTAN-A186JBEO	4 poles terminal board	1	AP
2-14	QW-VZD389JBEO	Terminal wire L	1	AG
2-15	QW-VZC487JBEO	Terminal wire N	1	AE
2-16	QW-VZD390JBEO	Main relay wire	1	AF
2-17	QW-VZC489JBEO	Earth lead	1	AF
2-20	PSGY-A415JBEO	Photo detector unit (IC101)	1	AK
2-21	QFS-AA050JBEO	Fuse 2.5A 250V	1	AD
2-22	RH-IZA140JBEO	IC (IC5)	1	AE
2-23	RH-IZA149JBEO	IC (IC3)	1	AE
2-24	RH-IZA337DRE0	ICEEPROM (IC80)	1	AK
2-25	RH-TZA098JBEO	Transistor (Q1)	1	AB
2-26	RH-VZA020JBEO	Varistor (CNR1)	1	AE



REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2-27	RH-VZA037JBEO	Varistor (NR1)	1	AE
2-28	RIC--A025BDE0	IC (IC2)	1	AE
2-29	RLMP-A043JBEO	LED (LED102)	1	AC
2-30	RRLYJA067JBEO	Relay (RY1)	1	AP
2-31	RTRNPA001JBEO	Transformer	1	AS
2-32	VHPLT3P8A//-3	LED (LED101)	1	AG
2-33	VHRPC817X7/1B	Photo coupler (PC1)	1	AD
2-34	VHRPC853H//-6	Photo coupler (PC2)	1	AG
2-35	VHRS201D01/-6	Solid state relay (SSR1)	1	AK
2-36	RD-TZA007BDE0	Diode (D6, D7)	2	AB
2-37	RH-DZA106JBEO	Diode (D1, D2, D3, D4)	4	AB
2-38	VHD1SS270A/-1	Diode (D5)	1	AA
2-39	VHEHZ24-2//-1	Zenner diode (ZD2)	1	AB
2-40	VHEHZ5C-1//-1	Zenner diode (ZD1)	1	AB

**CYCLE PARTS**

3- 1	CPIPCA473JBK0	Pipe assembly	1	BA
3- 2	PSEN-A004JBK0	Flare nut assembly (1/4")	1	AE
3- 3	PSEN-A005JBK0	Flare nut assembly (3/8")	1	AG
3- 4	PVLV-0341JBEO	Flare union (1/4")	1	AG
3- 5	PVLV-0342JBEO	Flare union (3/8")	1	AH
3- 6	DEVA-A022JBK0	Evaporator assembly [AH-X079E/AY-X079E]	1	BK
3- 6	DEVA-A086JBK0	Evaporator assembly [AH-X099E/AY-X099E]	1	BS

**ACCESSORY PARTS**

4- 1	CRMC-A447JBEO	Remote controller [AH-X079E/X099E]	1	BB
4- 1	CRMC-A442JBEO	Remote controller [AY-X079E/X099E]	1	BB
4- 2	FCOV-A013JBFS	Screw cover	2	AC
4- 3	LX-NZ0247JBEO	Special nut	1	AB
4- 4	XTTSD40P20000	Tapping screw (for fixing the cord holder)	1	AA
4- 5	LX-NZ0247JBEO	Special nut (for fixing long screw steadily)	7	AB
4- 6	LPFT-A029JBFO	Drain hose adpter [AY-X079E/X099E]	1	AD
4- 7	PPLTNA043JBW0	Mounting plate	1	AR
4- 8	XTTSD45P30000	Long screw	6	AA
4- 9	TINSEA217JBR0	Operation manual	1	AD
4-10	TINS-A550JBR0	Installation manual	1	AE
4-11	TINS-A551JBR0	Installation manual	1	AE
4-12	LX-BZA106JBEO	Special screw (for hanging remote controller)	1	AE
4-13	LHLD-A281JBFA	Cord holder (for covering the terminal board of indoor unit)	1	AC
4-14	UBATUA025JBEO	Battery pack	1	AE

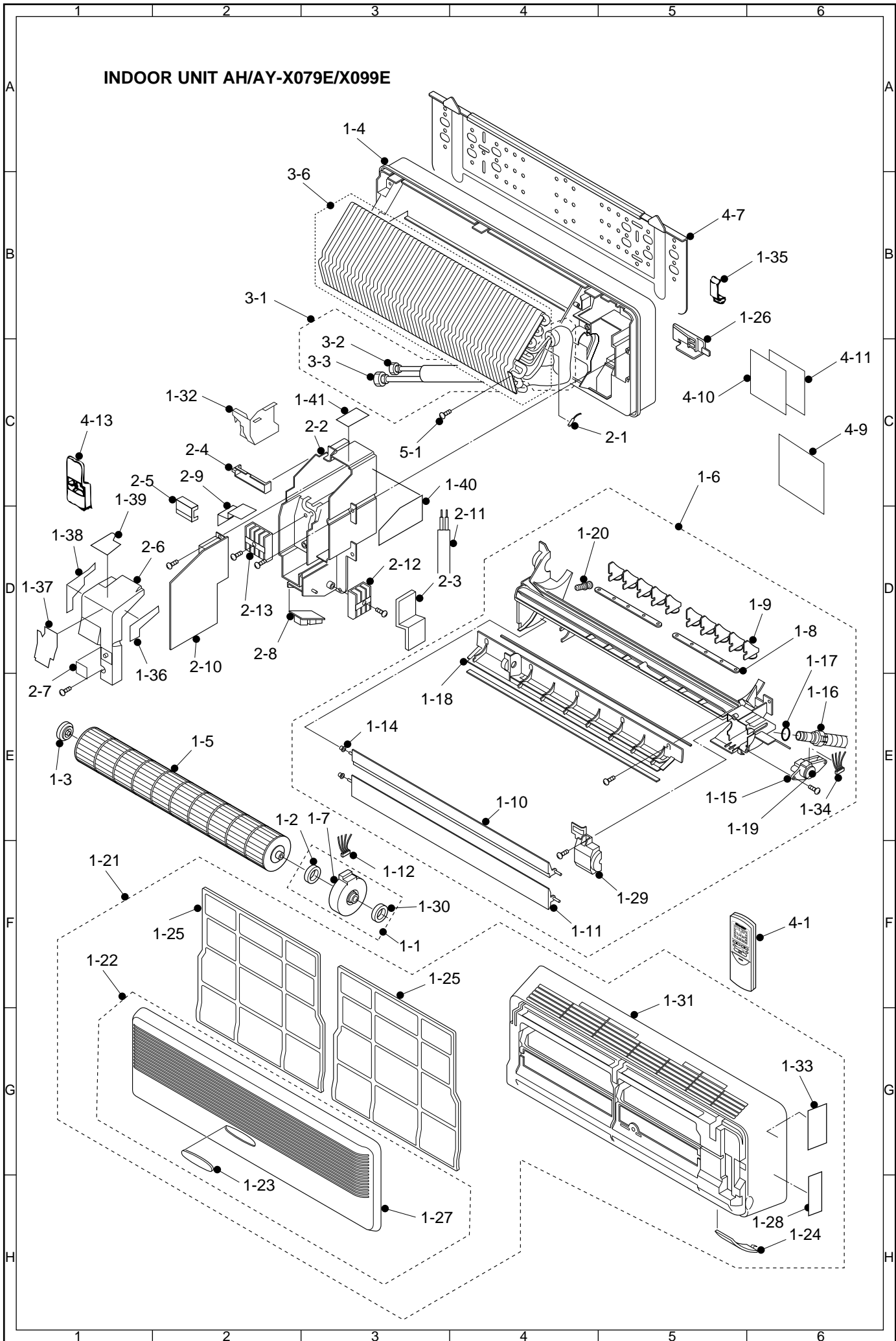
**SCREWS**

5- 1	LX-BZA075JBEO	Special screw	1	AA
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**HOW TO ORDER REPLACEMENT PARTS**

To have your order filled promptly and correctly, please furnish the following information.

- |                 |                |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO.    |
| 3. PART NO.     | 4. DESCRIPTION |



## REPLACEMENT PARTS LIST [AU/AE-X079E/X099E]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
<b>CONTROL BOX PARTS</b>				
1- 1	CMOTLA485JBE0	Fan motor	1	BF
1- 2	RTRN-A223JBE0	Current transfoemer CT1	1	AG
1- 3	CCIL-A082JBE0	Coil assembly [AE-X079E/X099E only]	1	AV
1- 4	DPWBFA147JBK0	Electric control board	1	BP
1- 5	QTAN-A186JBE0	Terminal board (4P)	1	AP
1- 6	RIC--A022BDE0	Integrated circuit IC2	1	AE
1- 7	VSDTD113ZS/-3	Transistor Q3	1	AC
1- 8	VHRPC817X7/1B	Photo coupler PC1	1	AE
1- 9	VHRPC853H// -6	Photo coupler PC2	1	AG
1-10	RC-AZA046JBE0	Capacitor	1	BE
1-11	RH-DZA117JBE0	Diode bridge	1	AM
1-12	RH-HZ0011JBE0	PTC thermistor	1	AN
1-13	RH-TZA145JBE0	Power transistor module(IPM)	1	BU
1-14	RH-TZA106JBE0	Power factor module(Active filter)	1	BL
1-15	PSEL-B743JBE0	Insulator	1	AC
1-16	RTHM-A022JBE0	Compressor thermistor	1	AN
1-17	RTHM-A325JBE0	Thermistor assembly	1	AT
1-18	RTRN-A199JBE0	Choke coil	1	BE
1-19	PBOX-A193JBF0	Control box	1	AU
1-20	LBND-A014JBE0	Wire fixing band	4	AA
1-21	PSEL-B744JBE0	Insulator	1	AD
1-22	PCOV-A304JBF0	P.W.B. cover	1	AD
1-23	PRDAFA072JBE0	Heat sink for Power transistor module	1	AQ
1-24	PRDAFA073JBE0	Heat sink for DB	1	AH
1-25	PSKR-A189JBE0	Bulkhead sheet	1	AF
1-26	PSHEGA019JBE0	Rubber for power factor module	1	AC
1-27	LANGKA104JBW0	Control box angle	1	AH
1-28	RFIL-A064JBE0	Ferrite core	4	AF
1-29	QW-VZD402JBE0	Lead wire (L1+)	1	AF
1-30	QW-VZD403JBE0	Lead wire (L1-)	1	AK
1-31	QW-VZD404JBE0	Lead wire (Earth)	1	AE
1-32	QW-VZD405JBE0	Lead wire (MRY1 - DB1)	1	AN
1-33	QW-VZD406JBE0	Lead wire (MRY1 - PTC)	1	AE
1-34	QW-VZD407JBE0	Lead wire (DB1+-AF(I+))	1	AF
1-35	QW-VZD408JBE0	Lead wire (T3 - TB2)	1	AQ
1-36	QW-VZD409JBE0	Lead wire (T10 - IPM(-))	1	AF
1-37	QW-VZD410JBE0	Lead wire (T5 - DB1))	1	AE
1-38	QW-VZD411JBE0	Lead wire (T2 - TBN)	1	AE
1-39	QW-VZD412JBE0	Lead wire (T1 - TB1)	1	AB
1-40	QW-VZD413JBE0	Lead wire (C8(+) - )T7)	1	AE
1-41	QW-VZD414JBE0	Lead wire (C8(+) - AF(0+))	1	AE
1-42	QW-VZD415JBE0	Lead wire (DB1(-) - AF(I-))	1	AE
1-43	QW-VZD416JBE0	Lead wire (C8(-) - AF(0-))	1	AE
1-44	QW-VZD417JBE0	Lead wire (C8(-) - T8)	1	AE
1-45	QW-VZD418JBE0	Lead wire (T9 - IPM(+))	1	AE
1-46	QW-VZD419JBE0	Lead wire (Compressor wire)	1	AE
1-47	QW-VZD420JBE0	Lead wire (AF lead wire 4P)	1	AE
1-48	RH-IXA510JBE0	Microcomputer IC1	1	AS
1-49	RH-IZA140JBE0	Integrated circuit IC3	1	AE
1-50	RH-TZA098JBE0	Transistor Q1, Q2, Q3	3	AB
1-51	RH-VZA020JBE0	Varistor CNR1, CNR2	2	AB
1-52	RH-VZA037JBE0	Varistor NR1, NR2	2	AE
1-53	RH-VZA044JBE0	Surge absorber SA1	1	AG

**CABINET AND UNIT PARTS**

2- 1	LANGKA068JBPO	Fan motor angle	1	AR
2- 2	PPFFPB087JBE0	Motor angle cushion	1	AC
2- 3	GCAB-A119JBFA	Rear cabinet	1	AW
2- 4	LHLD-0261JBM0	Cord holder	1	AB
2- 5	LANG-A429JBW0	Heat insulator	1	AF
2- 6	GCAB-A118JBFA	Front panel	1	BG
2- 7	GGADFA036JBTA	Fan guard	1	AX
2- 8	FCOV-A079JBY0	Control box cover	1	AW
2- 9	PGID-A042JBFA	Orifice	1	AP
2-10	PSEL-B741JBE0	Insulator (Control cover sheel A)	3	AD
2-11	PSEL-B155JBE0	Insulator (Bulkhead insulator)	1	AE
2-12	TLABBB111JBRA	Sharp badge	1	AH
2-13	CCHS-A654JBTA	Base pan assembly	1	BA
2-14	PFTA-A061JBFA	Side cover	1	AS
2-15	PSHE-A134JBE0	Protect cover	1	AD
2-16	MSPR-A027JBE0	Thermistor spring	1	AB
2-17	MSPR-A046JBE0	Protector spring	1	AC
2-18	NFANPA041JBE0	Propeller fan	1	AU
2-19	PSKR-A186JBPO	Bulkhead	1	AT
2-20	TLABKC346JBR0	Number card [AU-X079E]	1	AC
2-20	TLABKC344JBR0	Number card [AU-X099E]	1	AC

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2-20	TLABKC345JBR0	Number card [AE-X079E]	1	AC
2-20	TLABKC343JBR0	Number card [AE-X099E]	1	AD
2-21	TSPC-C952JBR0	Name badge [AU-X079E]	1	AE
2-21	TSPC-C951JBR0	Name badge [AU-X099E]	1	AE
2-21	TSPC-C950JBR0	Name badge [AE-X079E]	1	AE
2-21	TSPC-C924JBR0	Name badge [AE-X099E]	1	AE
2-22	PSEL-B156JBE0	Bulkhead insulator T10	1	AF
2-23	PSEL-B742JBE0	Insulator	1	AC
2-24	TLABCB149JBR0	Wiring diagram	1	AC
2-25	PSEL-B226JBE0	Orifice seal	3	AB
2-26	PSEL-A880JBE0	Rear cabinet seal	1	AC
2-27	LHLD-A114JBF0	Thermistor holder	1	AB
2-28	PSEL-B737JBE0	Cushion [AE-X079E, AE-X099E only]	1	AC
2-29	PSEL-B190JBE0	Motor angle cushion	1	AC
2-30	PSEL-B843JBE0	Insulator [AE-X079E, AE-X099E only]	1	AB
2-31	PSEL-B844JBE0	Insulator [AE-X079E, AE-X099E only]	1	AB

#### CYCLE PARTS

3- 1	CVLV-A491JBK0	Reverse valve assembly	1	BR
3- 2	DCPY-A181JBK0	Capillary tube assembly [AU-X079E/X099E]	1	AR
3- 2	DCPY-A179JBK0	Capillary tube assembly [AE-X079E]	1	AR
3- 2	DCPY-A177JBK0	Capillary tube assembly [AE-X099E]	1	AR
3- 3	PCON-A406JBP0	Condensor assembly [AU-X079E/X099E]	1	BU
3- 3	PCON-A403JBP0	Condensor assembly [AE-X079E/X099E]	1	BW
3- 4	DVLV-A297JBK0	3 way valve unit	1	BC
3- 5	LX-NZA147JBE0	Service nut	1	AK
3- 6	LX-NZA146JBE0	Bonnet	2	AF
3- 7	DVLV-A302JBK0	2 way valve unit	1	BA
3- 8	LBSHCA005JBE0	Terminal bushing	1	AA
3- 9	FCMPRA075JBK0	Compressor assembly (3-20, 3-23 included)	1	CH
3-10	GLEG-A029JBE0	Compressor cushion	3	AE
3-11	PSPF-A686JBE0	Compressor cover	1	AY
3-12	PSPF-A685JBE0	Compressor cover	1	AL
3-13	PSEN-A004JBK0	Flare nut assembly	1	AE
3-14	PSEN-A005JBK0	Flare nut assembly	1	AG
3-15	PGUMS0170JBE0	Damper rubber	1	AF
3-16	PCOV-0562JBE0	Terminal cover	1	AD

#### SCREWS AND NUTS

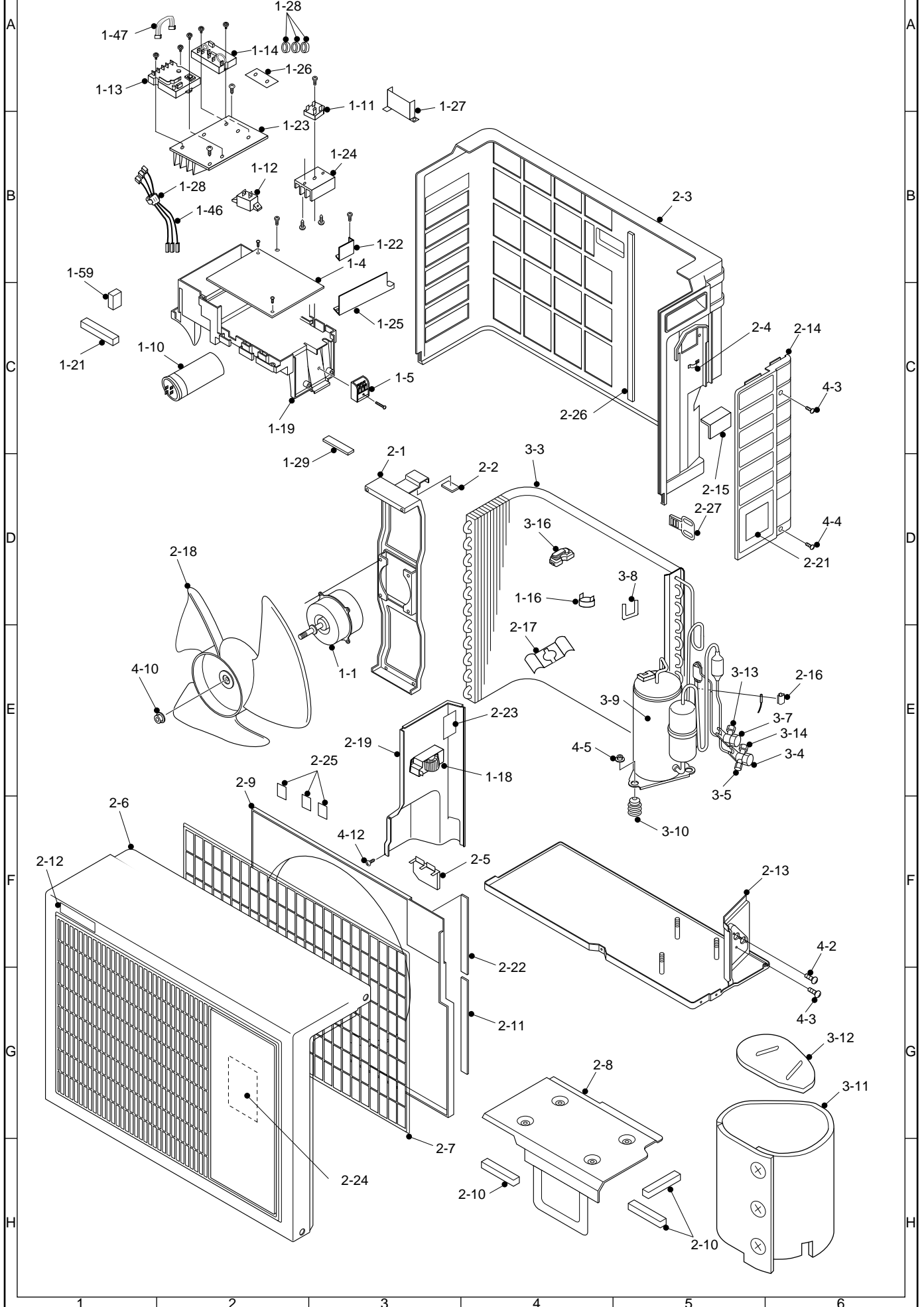
4- 1	LX-BZA091JBE0	Special screw	23	AA
4- 2	LX-BZA072JBE0	Special screw	4	AB
4- 3	LX-BZA176JBE0	Special screw	1	AC
4- 4	LX-BZA166JBE0	Special screw	5	AB
4- 5	LX-NZA026JBE0	Special screw	3	AC
4- 6	LX-BZA075JBE0	Special screw	1	AA
4- 7	LX-BZA091JBE0	Special screw	7	AA
4- 8	LX-BZA131JBE0	Special screw	11	AB
4- 9	LX-BZA127JBE0	Special screw	1	AC
4-10	LX-NZA135JBE0	Special nut	1	AC
4-11	XTSSF40P12000	Special nut	7	AB
4-12	LX-BZA175JBE0	Special screw	2	AC

#### HOW TO ORDER REPLACEMENT PARTS

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

# OUTDOOR UNIT AU-X079E/X099E







# SHARP